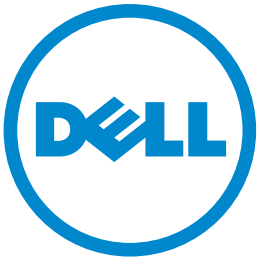
Dell PowerEdge C410x

Hardware Owner’s Manual



Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Regulatory Model B02S

July 2010 Rev. A00

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Introduction

Checklist

Carefully unpack the Dell PowerEdge C410X server and check that the following items were included.

- One Dell PowerEdge C410X system
- Dell PowerEdge C410x Getting Started Guide
- Safety, Environmental, and Regulatory Information (SERI)
- Warranty and Support Information (WSI) or End User License Agreement (EULA)

Contact Dell if some items are missing or appear damaged.

Chapter 1: Product Overview

1.1 A Tour of the System

The following sections describe the external features of the Dell PowerEdge C410X server.

1.1.1. System Front View

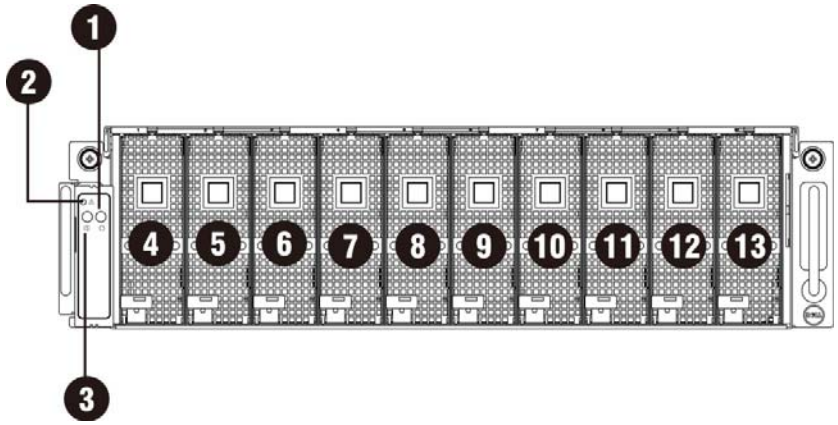


Figure 1 – Front View

1	System LED	8	GPGPU Cage 5
2	UID LED/Button	9	GPGPU Cage 6
3	Power LED/Button	10	GPGPU Cage 7
4	GPGPU Cage 1	11	GPGPU Cage 8
5	GPGPU Cage 2	12	GPGPU Cage 9
6	GPGPU Cage 3	13	GPGPU Cage 10
7	GPGPU Cage 4		

1.1.2. System Back View

Back view of system is shown below:

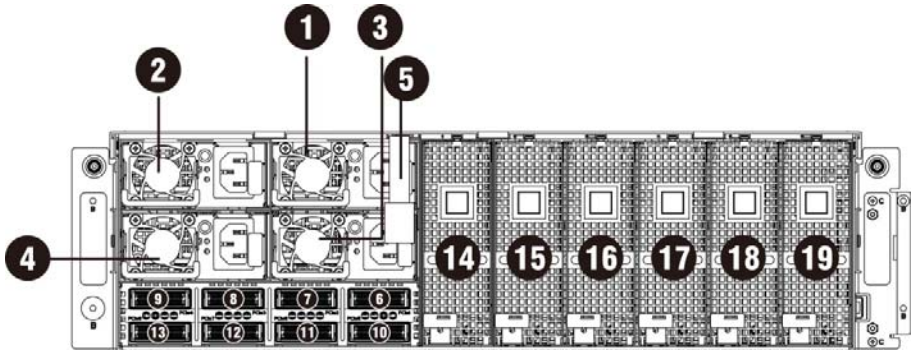


Figure 2 – Back View

1	Power Module 1	11	iPass connector 6
2	Power Module 2	12	iPass connector 7
3	Power Module 3	13	iPass connector 8
4	Power Module 4	14	GPGPU Cage 11
5	BMC LAN Cable	15	GPGPU Cage 12
6	iPass connector 1	16	GPGPU Cage 13
7	iPass connector 2	17	GPGPU Cage 14
8	iPass connector 3	18	GPGPU Cage 15
9	iPass connector 4	19	GPGPU Cage 16
10	iPass connector 5		

1.2 System LEDs Description

1.2.1. Front System LEDs

The front system LEDs contain Status LED, Power LED and UID LED information.

The detailed LEDs information is listed below:

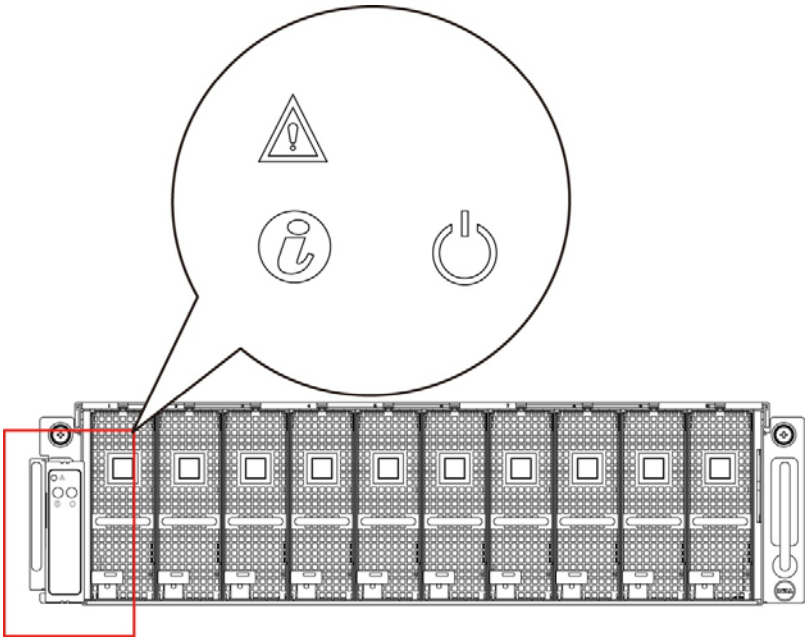


Figure 3 – Front System LEDs

Table 1 Front System LEDs

<table>
<tr><td rowspan="5"> </td><td rowspan="5">Status LED</td><td colspan="3">Displays status/errors and is controlled by BMC.</td></tr>
<tr><td>Color</td><td>Condition</td><td>Occurrence</td></tr>
<tr><td rowspan="3">Amber</td><td>Blink Fast</td><td>Power supply fail</td></tr>
<tr><td>On</td><td>FAN fail or sensor error</td></tr>
<tr><td>Blink</td><td>GPU card fail</td></tr>
<tr><td rowspan="4"> </td><td rowspan="4">UID LED</td><td colspan="3">Lights when front or rear ID button is pressed.</td></tr>
<tr><td>Color</td><td>Condition</td><td>Occurrence</td></tr>
<tr><td rowspan="2">Blue</td><td>Off</td><td>No identification</td></tr>
<tr><td>Blinking</td><td>ID Button pressed on system (ID command executed)</td></tr>
<tr><td rowspan="4"> </td><td rowspan="4">Power LED</td><td colspan="4">Lights green when server is powered on.</td></tr>
<tr><td colspan="2">Color</td><td>Condition</td><td>Occurrence</td></tr>
<tr><td colspan="2" rowspan="2">Green</td><td>On</td><td>Power on</td></tr>
<tr><td>Blinking</td><td>Power on fail or without any GPU card</td></tr>
</table>

1.2.2. LAN LEDs

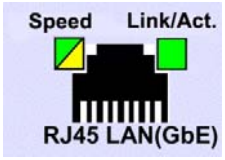


Figure 4 – LAN LEDs

Table 2 LAN LEDs

		Color	Condition	Occurrence
LAN	LAN Link/Activity	Green	On	LAN Link / no Access
			Blink	LAN Access
		N/A	Off	Idle
	10 LAN Speed	N/A	Off	10Mbps connection
	100 LAN Speed	Green	On	10Mbps connection
			Blink	Port identification with 10 or 100Mbps connection
	GbE LAN Speed	Yellow	On	1Gbps connection
			Blink	Port identification with 1Gbps connection

Chapter 2: Removing and Installing Hardware

Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damage to your computer or injury to yourself.

- Always disconnect the computer from the power outlet whenever you are working inside the computer case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal system of the computer case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging until you are ready to use the component for the installation.

2.1. Dell PowerEdge C410X Middle Board Connectors and Jumpers

Figure 5 displays the most important DELL PowerEdge C410X middle board components.

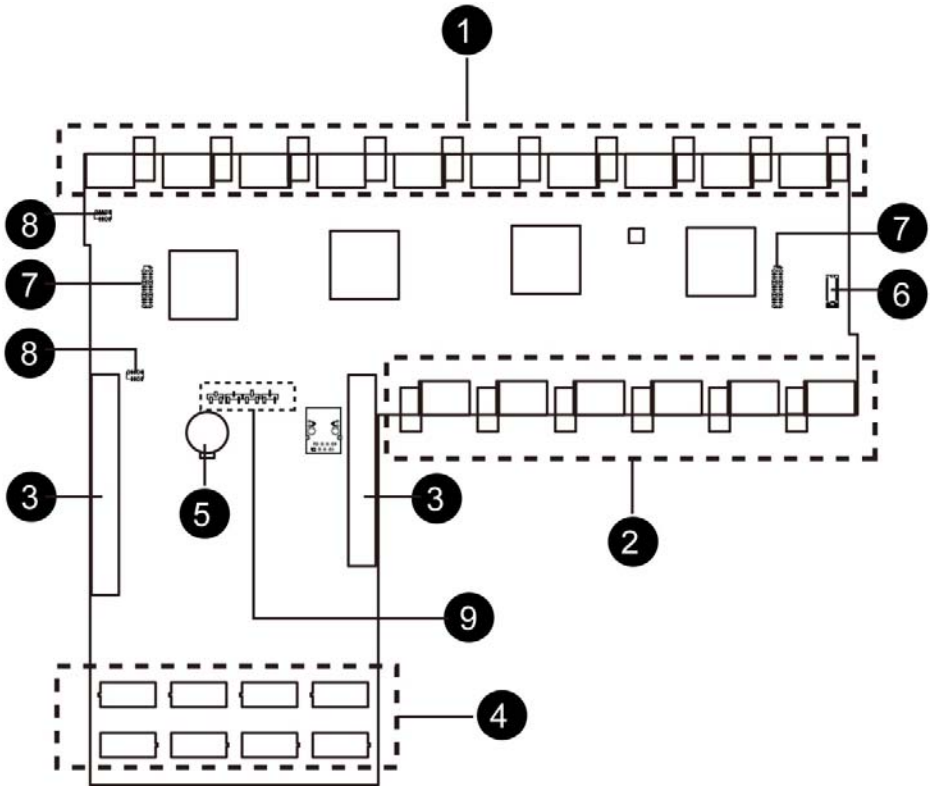


Figure 5 – Middle Board Connectors and Jumpers

Item	Component	Items	Component
1.	PCI-E connectors	6.	Front I/O connector
2.	PCI-E connectors	7.	FAN connectors
3.	Power connectors	8.	FAN LED connectors
4.	iPass connectors	9.	Failover setting pin header
5.	Battery		

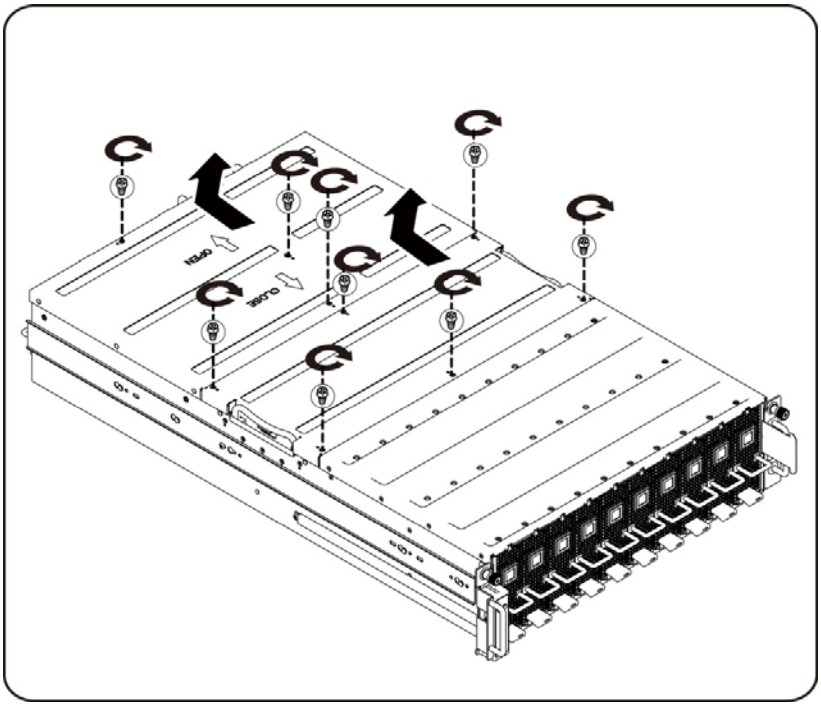
2.2. System Cover

WARNING: Before you remove or install the system cover:

- make sure the server is not turned on or connected to the AC power.

Follow these instructions to remove the system cover:

1. Loosen and remove the securing screw on the top of the system.
2. Slide the cover horizontally to the back using the traction pad and remove the cover in the direction of the arrow.



NOTE: This system must be operated with the system cover installed to ensure proper cooling.

Follow these instructions to install the system cover:

Reverse the steps above to install the system cover.

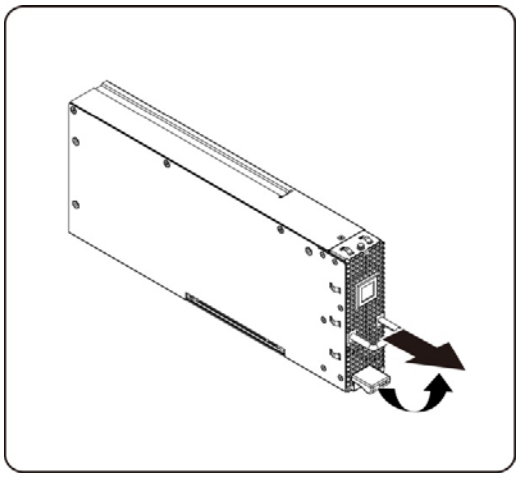
2.3. GPGPU Cage

NOTE: When you remove or install the GPGPU cage, note the following points:

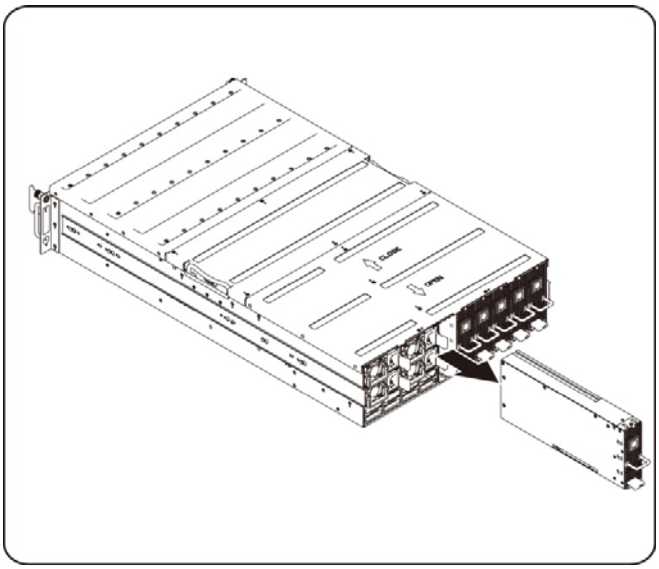
- Take note of the drive tray orientation before sliding it out.
- The tray will not fit back into the bay if inserted incorrectly.

Follow these instructions to remove the cage:

1. Press the release button along the direction of the arrow.



2. Slide the cage assembly out of the system.



Follow these instructions to install the cage:

Reverse the steps above to install the cage.

2.4. Replacing GPGPU Card

⚠WARNING: Before you remove or install the system fan, take the steps below:

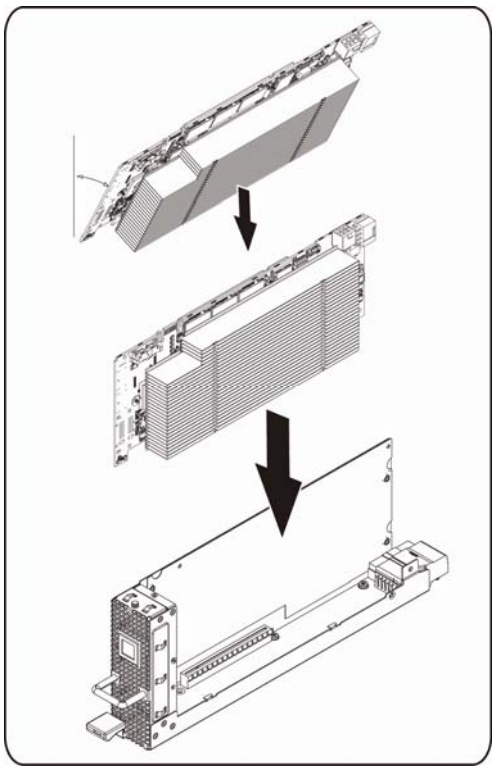
- Make sure the system is not turned on or connected to the AC power.
- Disconnect all necessary cable connections.
- Turn off the specific single GPU cage power.

Failure to observe these warnings could result in personal injury or damage to the equipment.

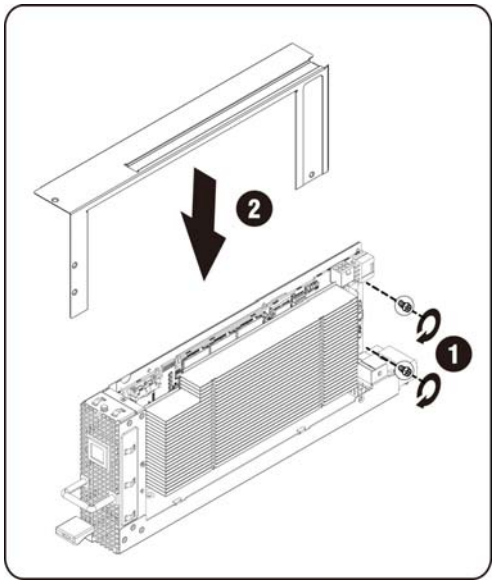
Follow these instructions to replace a GPGPU card:

For M1060 System

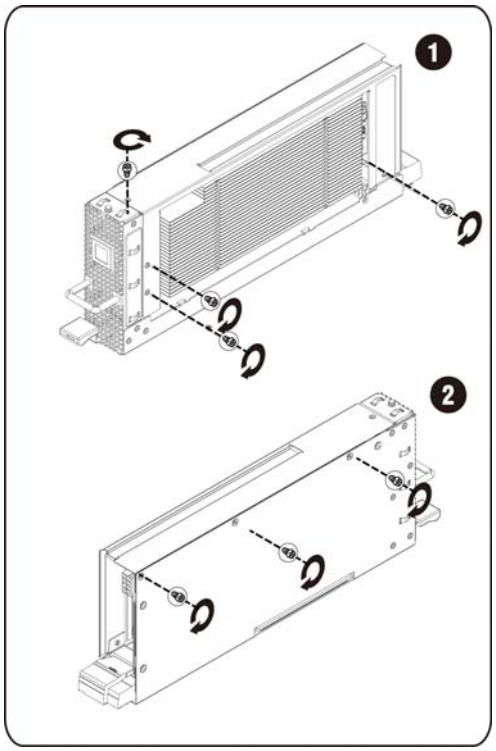
1. Insert the GPGPU card by 45 degree and push it into socket vertically.



2. Secure the card in place with screws and place the GPGPU side cover as illustration arrow show.



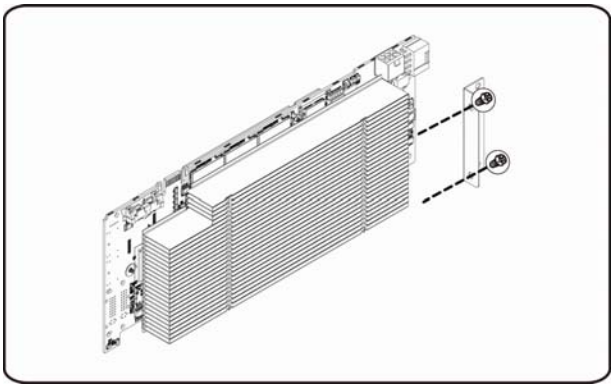
3. Secure the GPGPU side cover and back cover in place with screws.



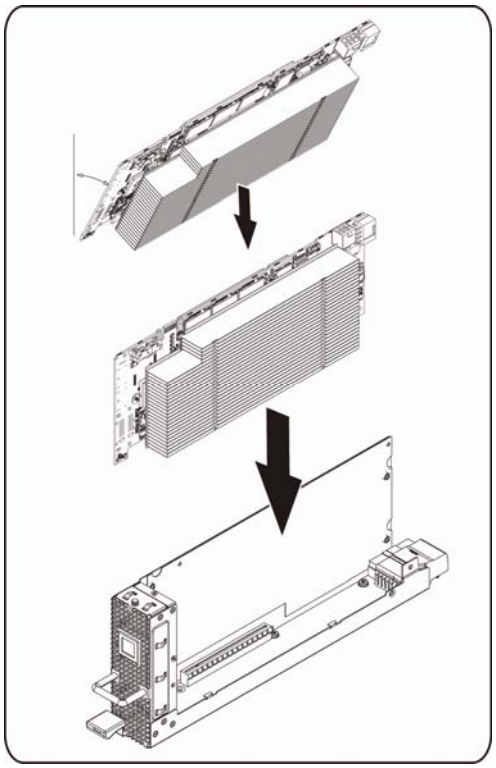
Follow these instructions to replace a GPGPU card:

For M2050 System

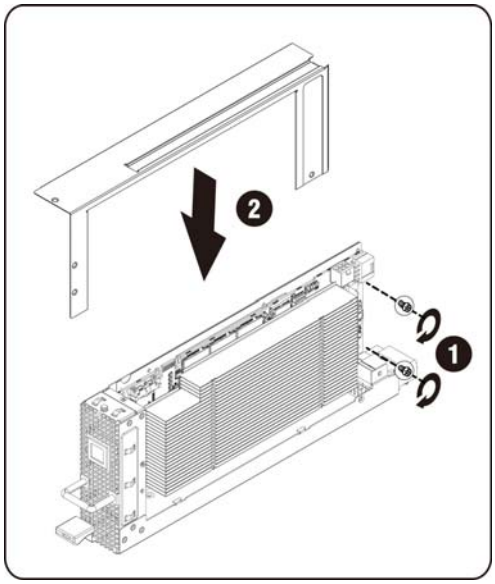
1. Attach the support bracket on the GPGPU board and secure it in place with screws.



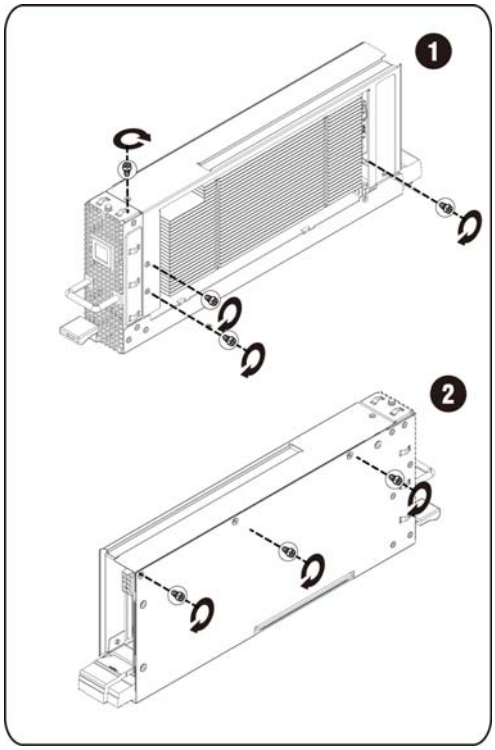
2. Insert the GPGPU card by 45 degree and push it into socket vertically.



3. Secure the card in place with screws and place the GPGPU side cover as illustration arrow show.



4. Secure the card in place with screws and place the GPGPU side cover as illustration arrow show.



2.5. System Fans

In case a of system fan failure, you can quickly replace the system fan.

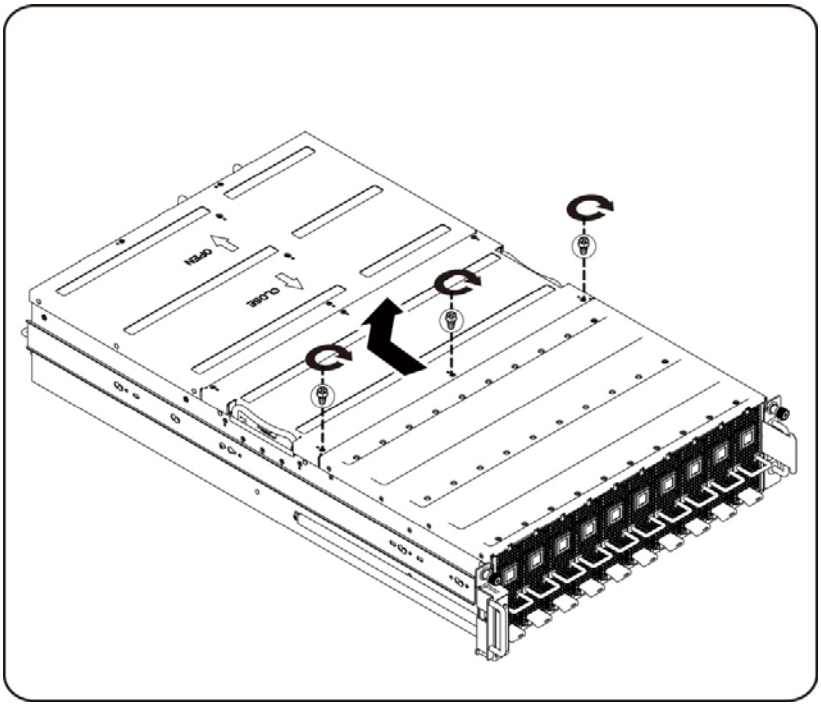
WARNING: Before you remove or install the system fan, take the steps below:

- Make sure the system is not turned on or connected to the AC power.
- Disconnect all necessary cable connections.

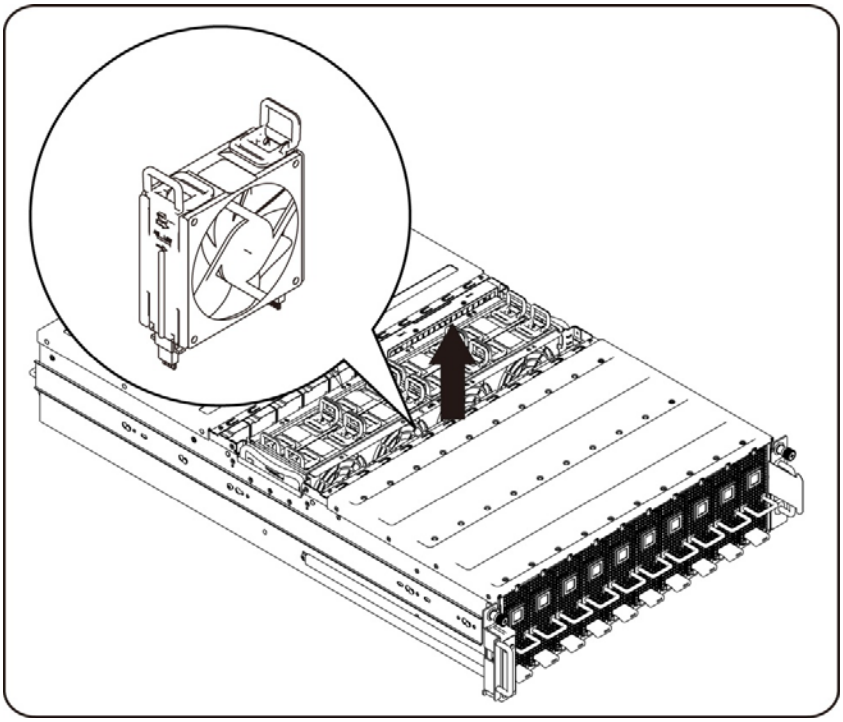
Failure to observe these warnings could result in personal injury or damage to the equipment.

Follow the instruction to remove the system fan:

1. Loosen and remove the securing screw on the top of the system.



2. Lift the system fan out of the system fan cage.



Follow these instructions to install the system fan:

Reverse the step above to install the system fan.

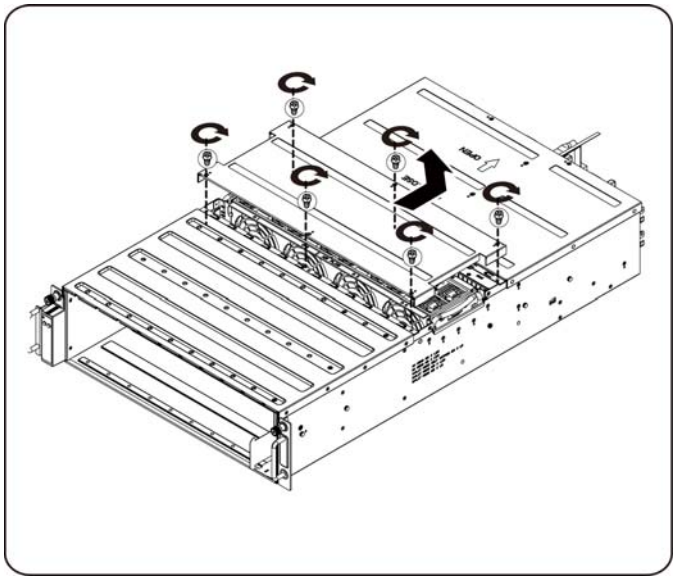
2.6. System Fans Cages

⚠WARNING: Before you remove or install the system fan cage, take the steps below:

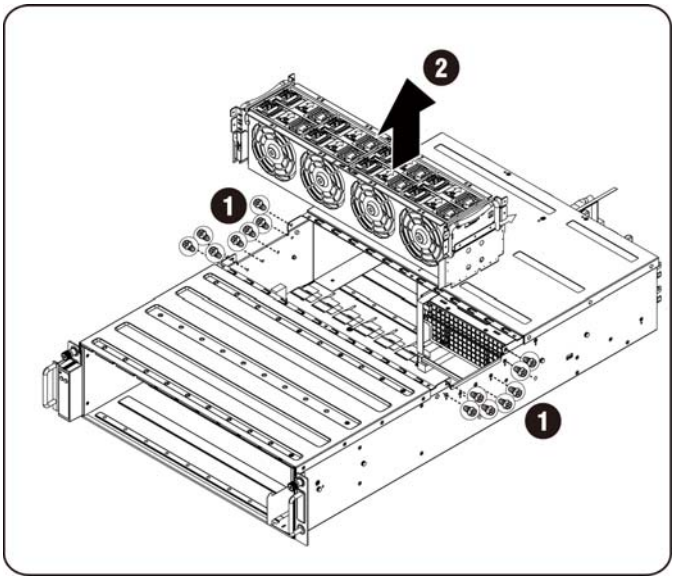
- Make sure the system is not turned on or connected to the AC power.
- Disconnect all necessary cable connections.

Failure to observe these warnings could result in personal injury or damage to the equipment.

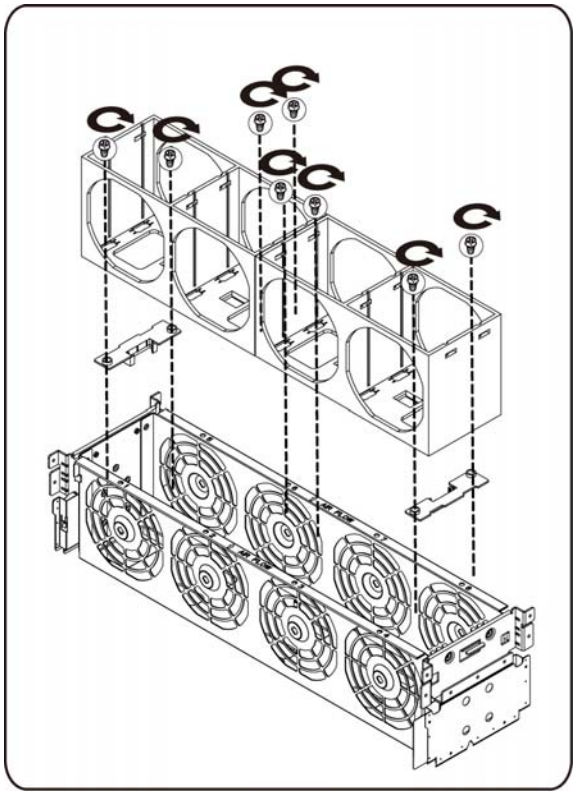
1. Loosen and remove the securing screw on the top of the system.



2. Lift the system fan out of the system fan cage. See System Fans on page 14 for detail instruction.



3. Loosen and remove the securing screw on the top of the system fan cage.



2.7. Power Supplies

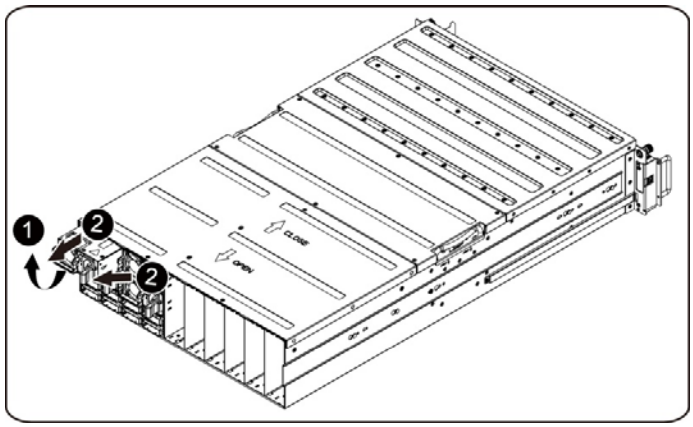
In case of a power supply failure, you can quickly replace the power supply unit.

Follow these instructions to remove the power supply:

WARNING: In order to reduce the risk of injury from electric shock, disconnect the failed power supply from the AC power before removing it from the system.

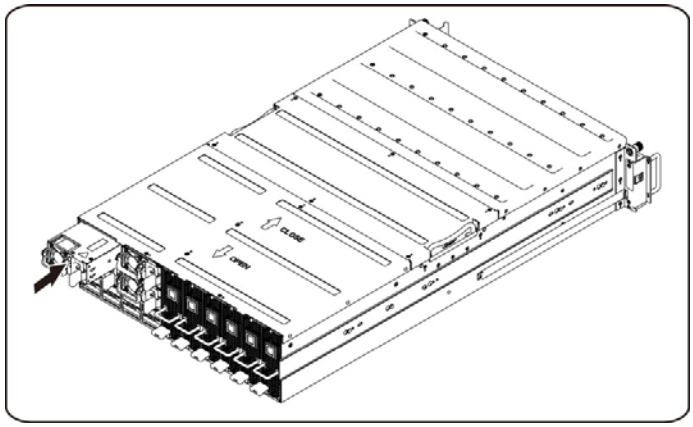
1. Pull up the power supply handle.
2. Press the retaining clip on the right side of the power supply along the direction of the arrow.
3. At the same time, pull out the power supply by using its handle.

NOTE: The power supply takes considerable force to remove.



Follow these instructions to install the power supply:

Insert the replacement power supply firmly into the bay. The retaining clip should snap. Connect the AC power cord to the replacement power supply.

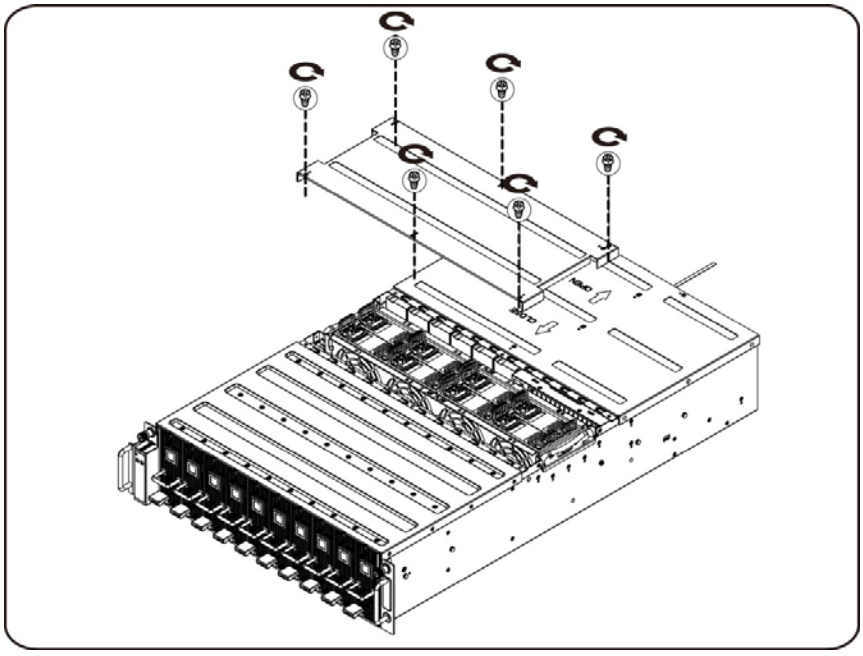


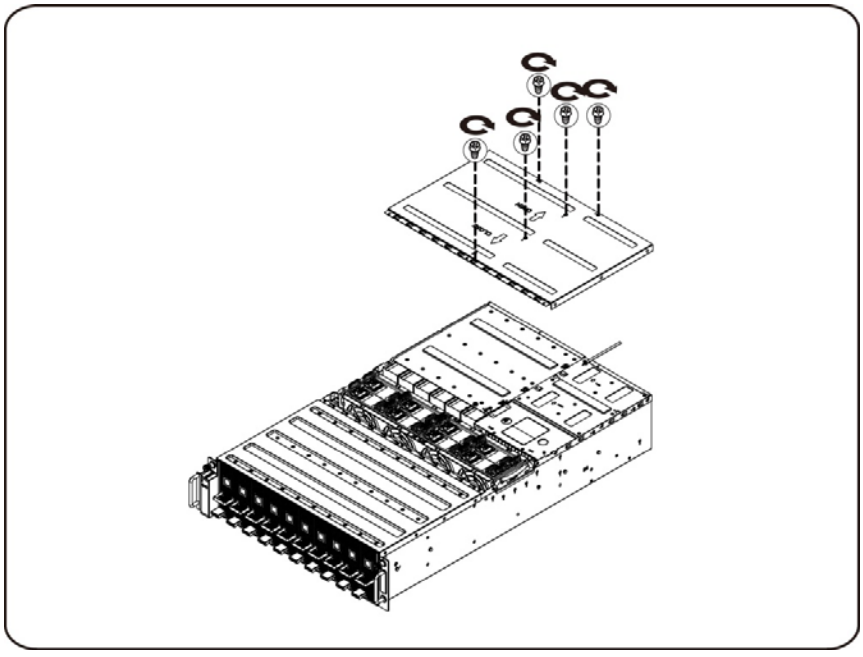
2.8. Removing Power Distribution Board (PDB)

Follow these instructions to remove the PDB:

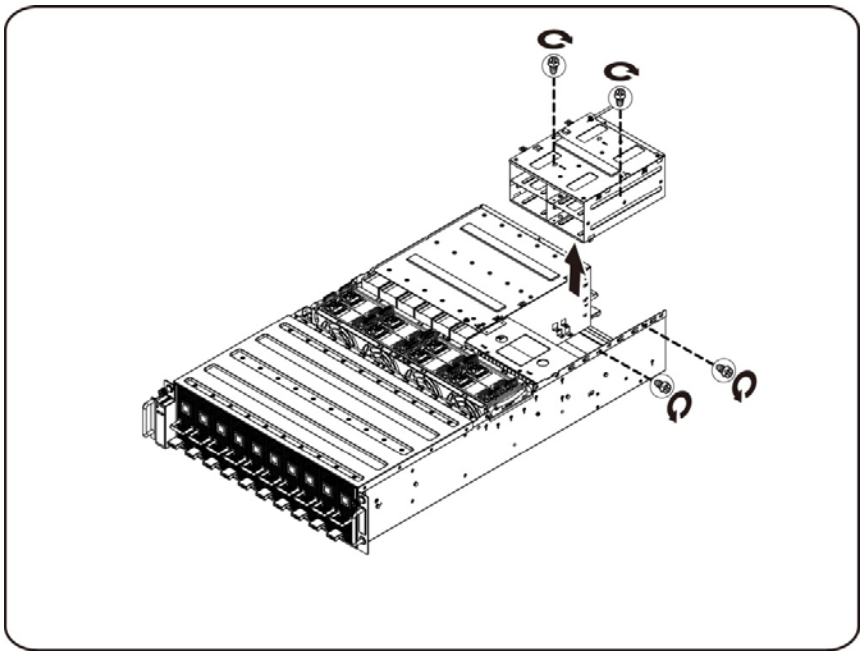
WARNING: In order to reduce the risk of injury from electric shock, disconnect the failed power supply from the AC power before removing it from the system.

1. Loosen and remove the securing screws on the top of the system.

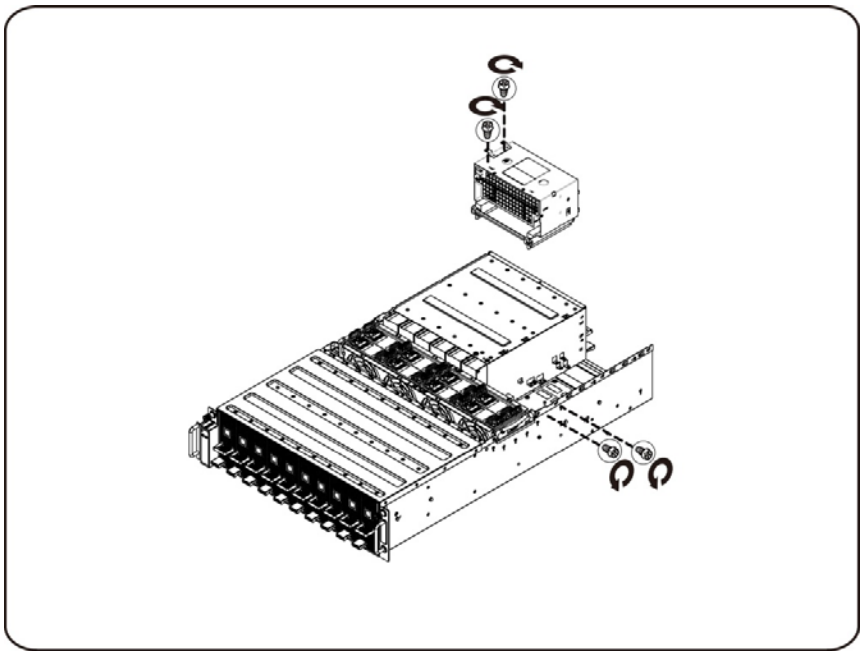




2. Loosen and remove the securing screws on the top of power supply cage and remove the securing screw on the side of the system.



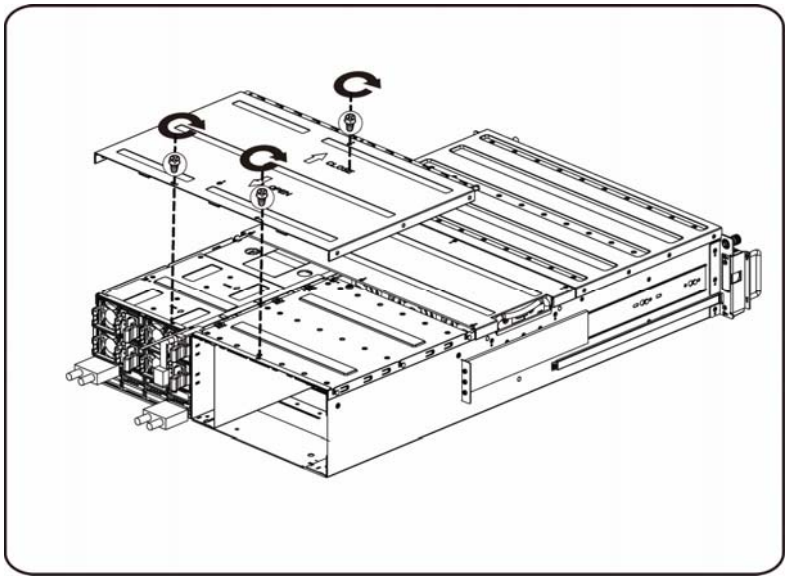
3. Loosen and remove the securing screws on the PDB.



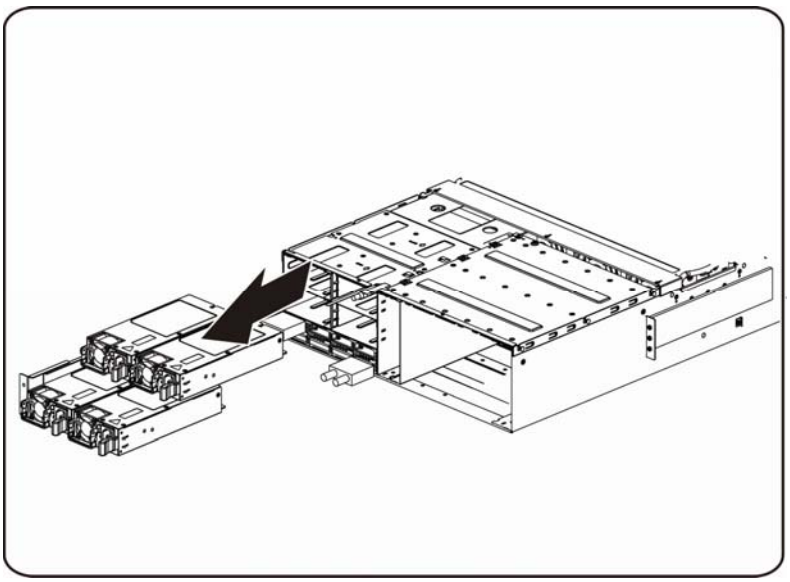
2.9. Replacing iPass Board

Follow these instructions to replace the iPass board:

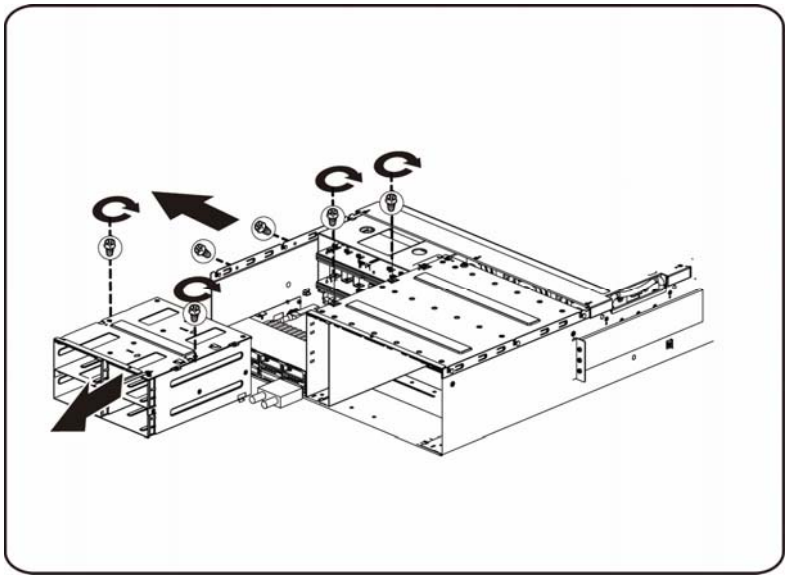
1. Loosen and remove the securing screws on the top of the system.



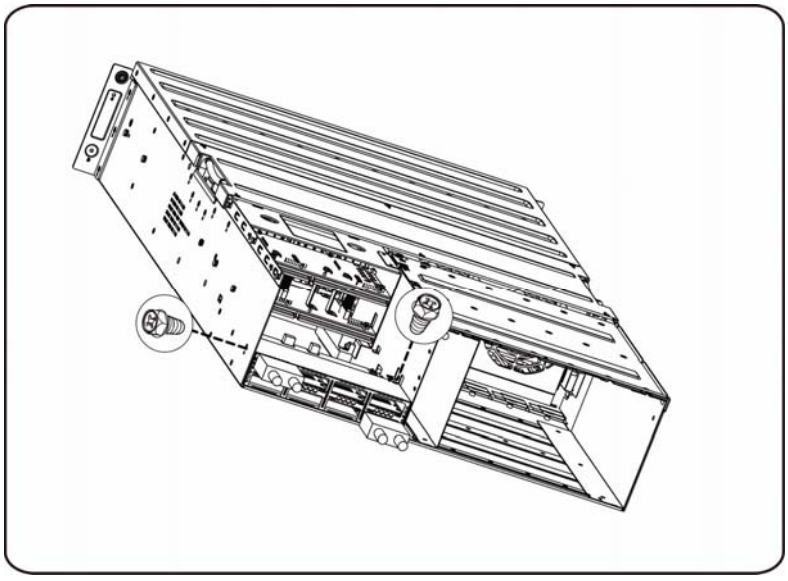
2. Remove the power supply. See Power Supplies on page 18 for detail instruction.



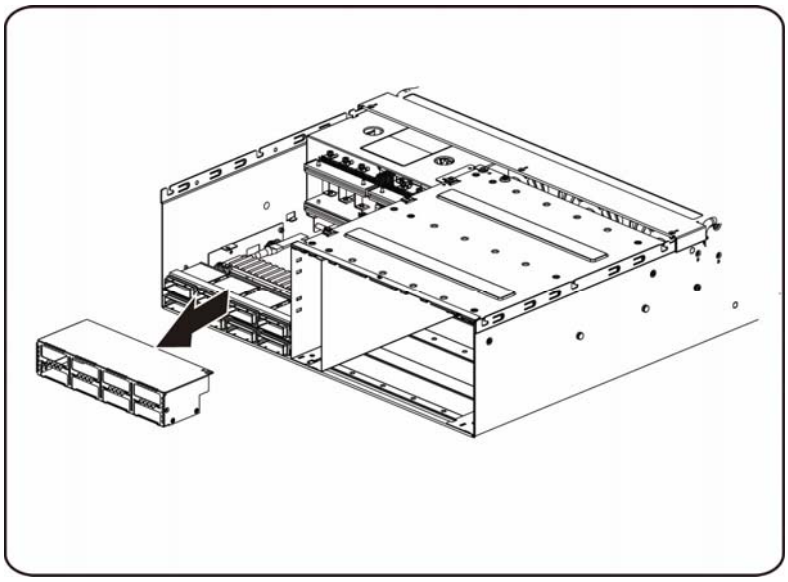
3. Loosen and remove the securing screws on the top of power supply cage and remove the power supply cage out of the system.



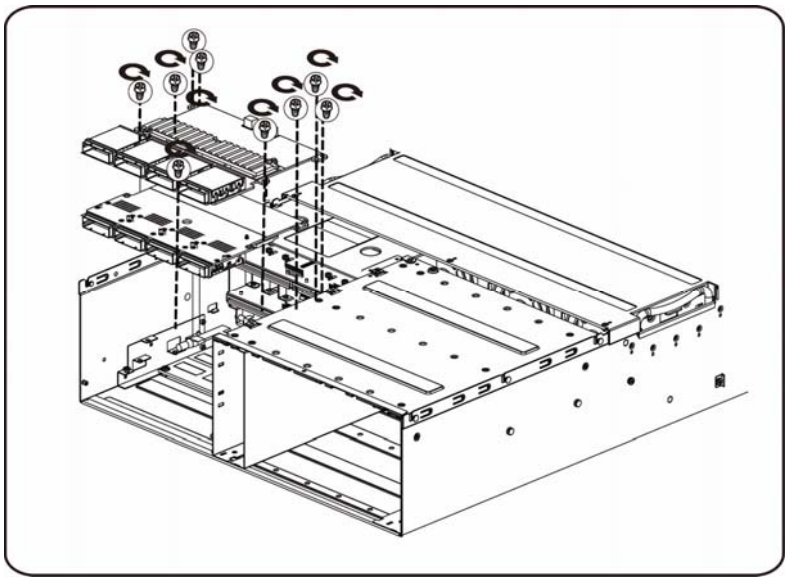
4. Loosen and remove the securing screws on the top of iPass connector cage.



5. Remove iPass connector cage.



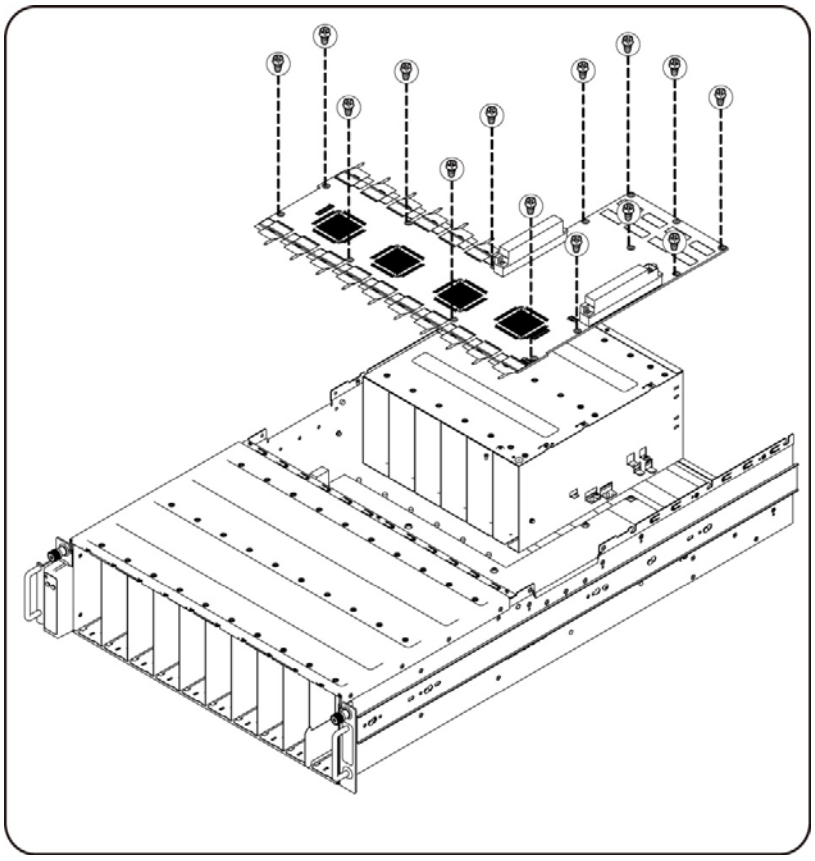
6. Loosen and remove the securing screws on the top of iPass board.



2.10. Replacing Middle Board

Follow these instructions to replace the middle board:

1. Remove the system cover. See System Cover on page 8.
2. Remove the fourteen (14) screws securing the mainboard in place. Lift the middle board out of the system in the direction of the arrow, front edge first, to clear the I/O ports.

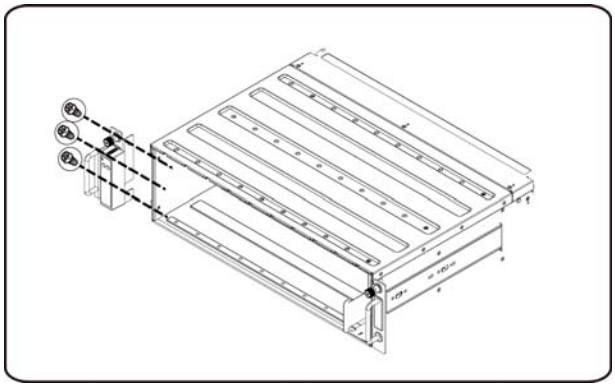


2.11. Replacing Front I/O Panel

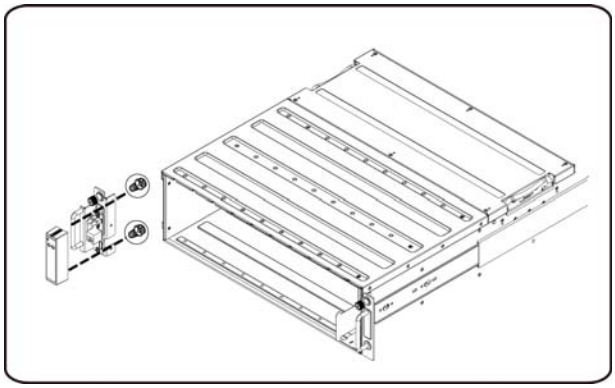
⚠WARNING: Before you remove or install the system cover:

- make sure the system is not turned on or connected to the AC power.

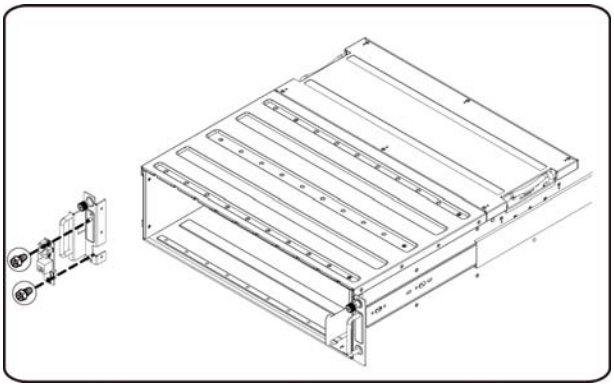
1. Loosen and remove the securing screws as illustration shown below



2. Loosen the securing screws and remove the ear board cover.



3. Loosen and remove the securing screws on the ear board.



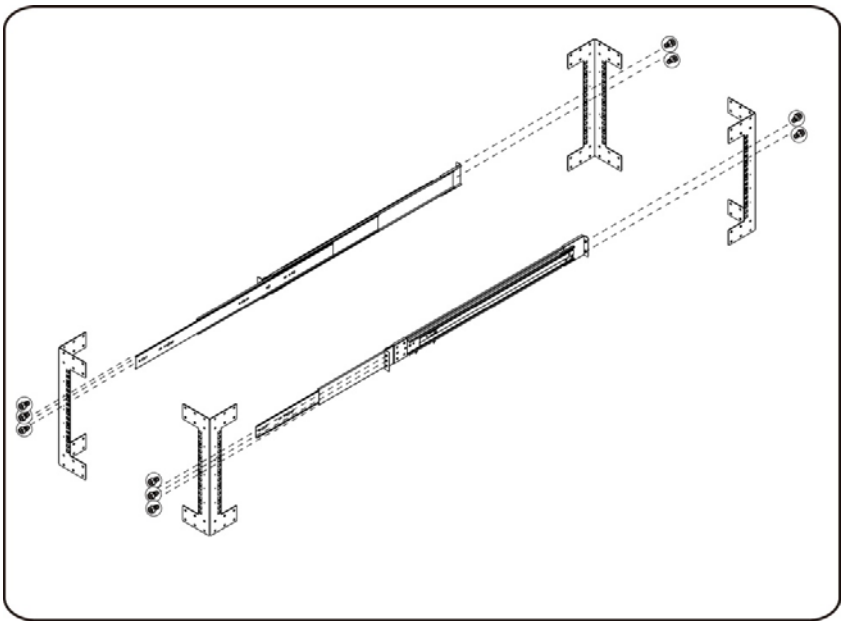
2.12. Installing the Rail and the System

⚠WARNING: Before you remove or install the system cover:

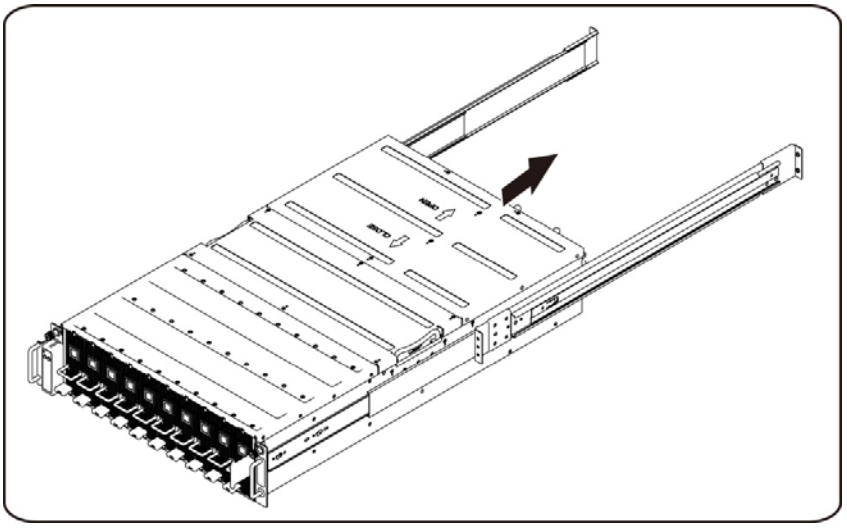
- make sure the system is not turned on or connected to the AC power.

Follow these instructions to install the rail into a rack:

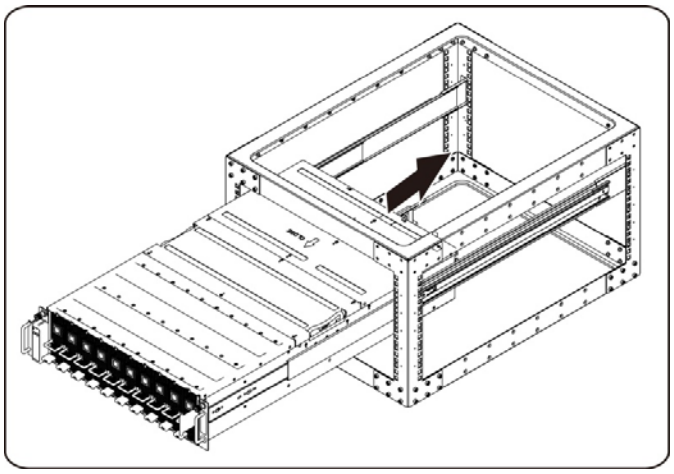
1. Install the sliding rails into the rack.



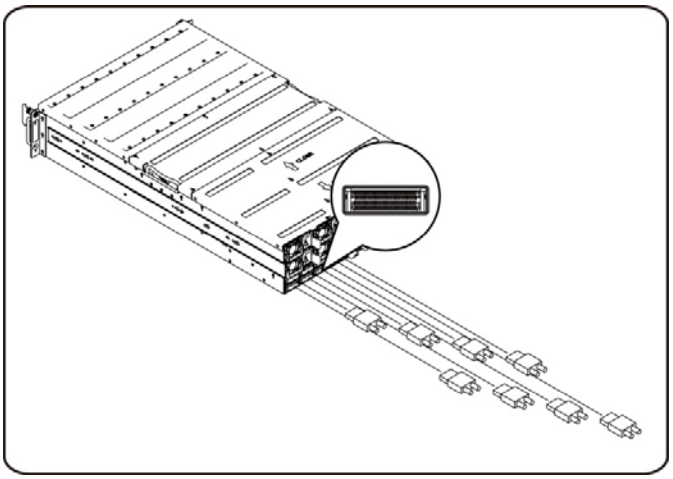
2. Align the inner rails with the sliding rails of the rack.

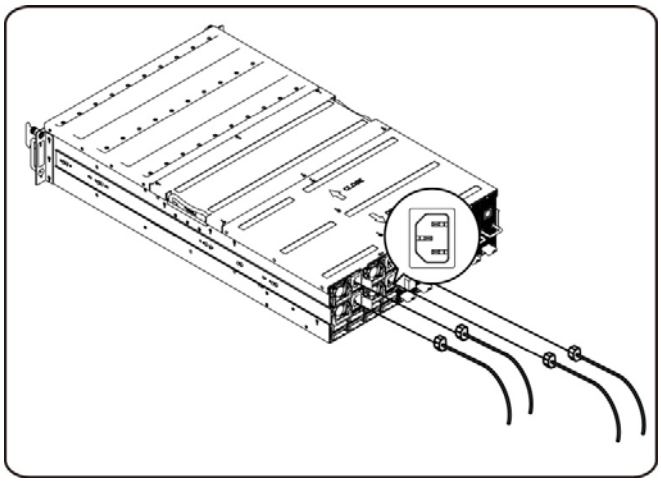


3. Push the system into the sliding rails until the locking latch clicks into place.

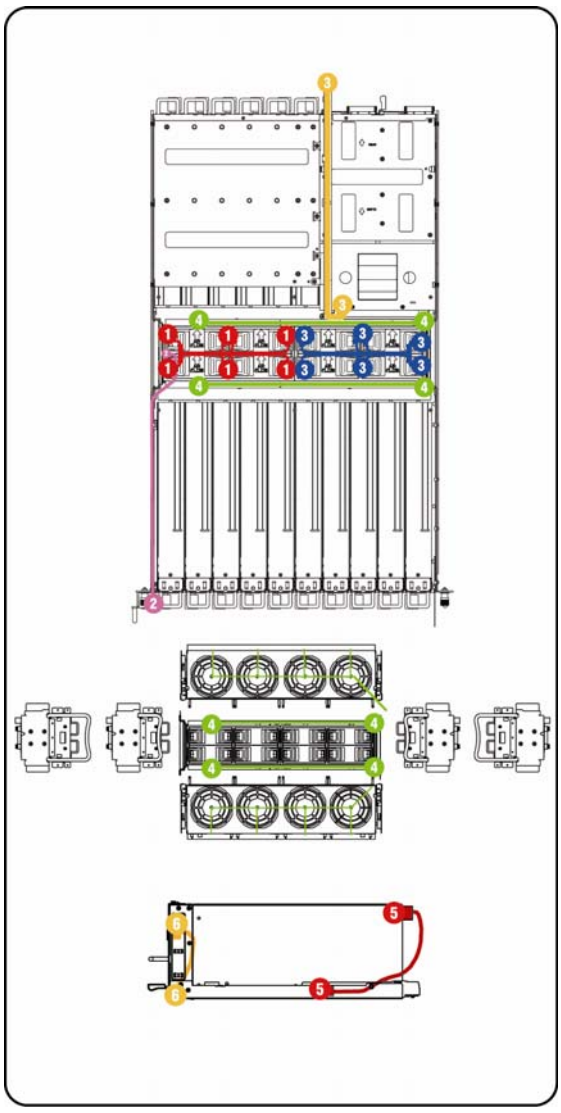


4. Connect ipass connectors and power connectors.





Chapter 3: Cable Routings



1	Fan Power Cable
2	Front I/O Cable
3	RJ45 Cable
4	Fan LED Cable
5	GPU Cable
6	Switch Cable

iPass Port Mapping

		IPASS		GPGPU			IPASS		GPGPU
Mapping 1	●	1	VS	1, 15		○	1	VS	1,2 , 15, 16
		5		2, 16			5		N/A
Mapping 2	●	2	VS	3, 13		○	2	VS	3,4, 13, 14
		6		4, 14			6		N/A
Mapping 3	●	3	VS	5, 11		○	3	VS	5,6 , 11, 12
		7		6, 12			7		N/A
Mapping 4	●	4	VS	7, 9		○	4	VS	7,8 , 9, 10
		8		8, 10			8		N/A

Chapter 4: BMC Remote Management Console

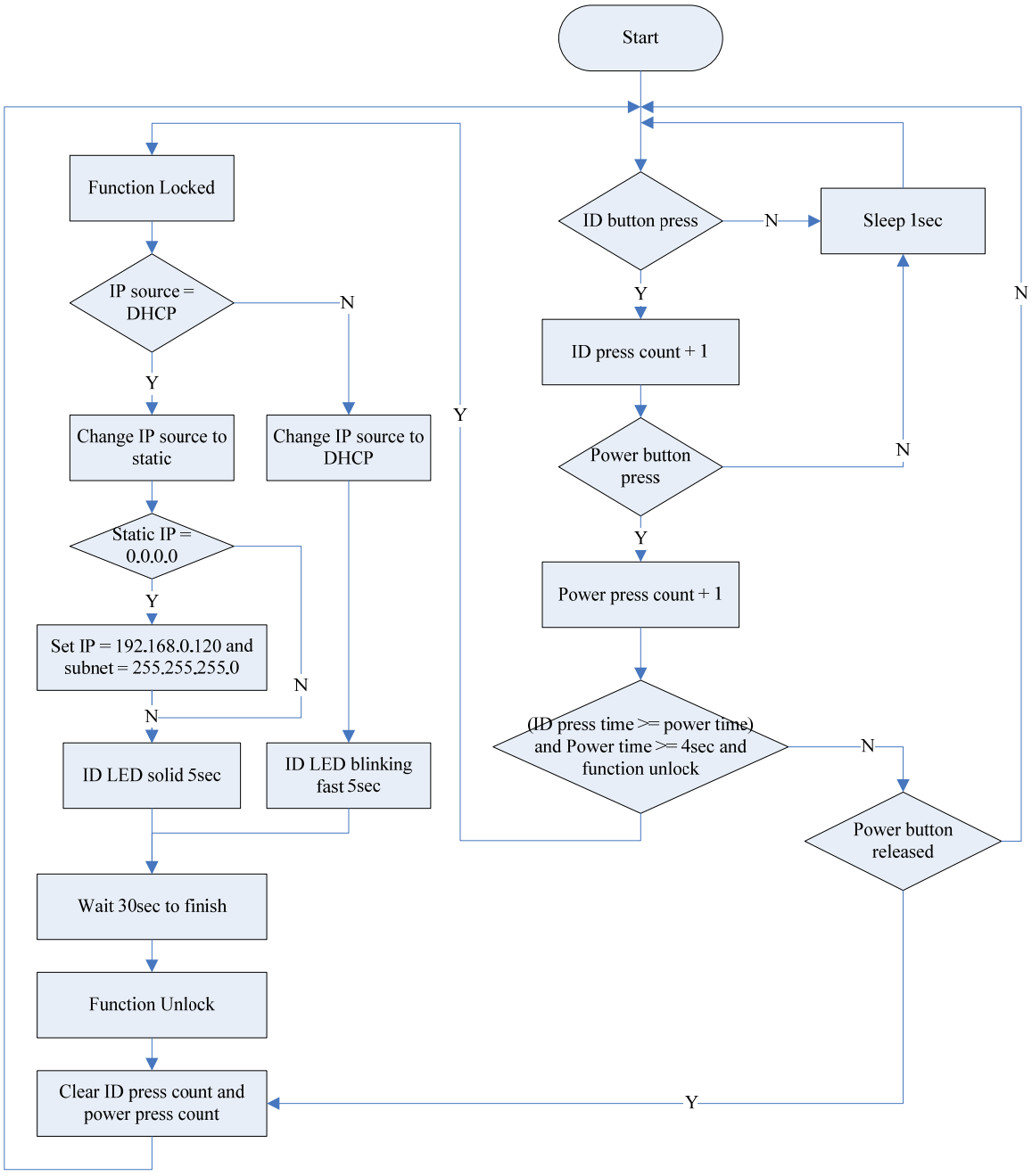
This chapter provides information on the various functions of the Dell Remote Management Console GUI's (Graphics User Interface).

Initial Configuration via DHCP Server

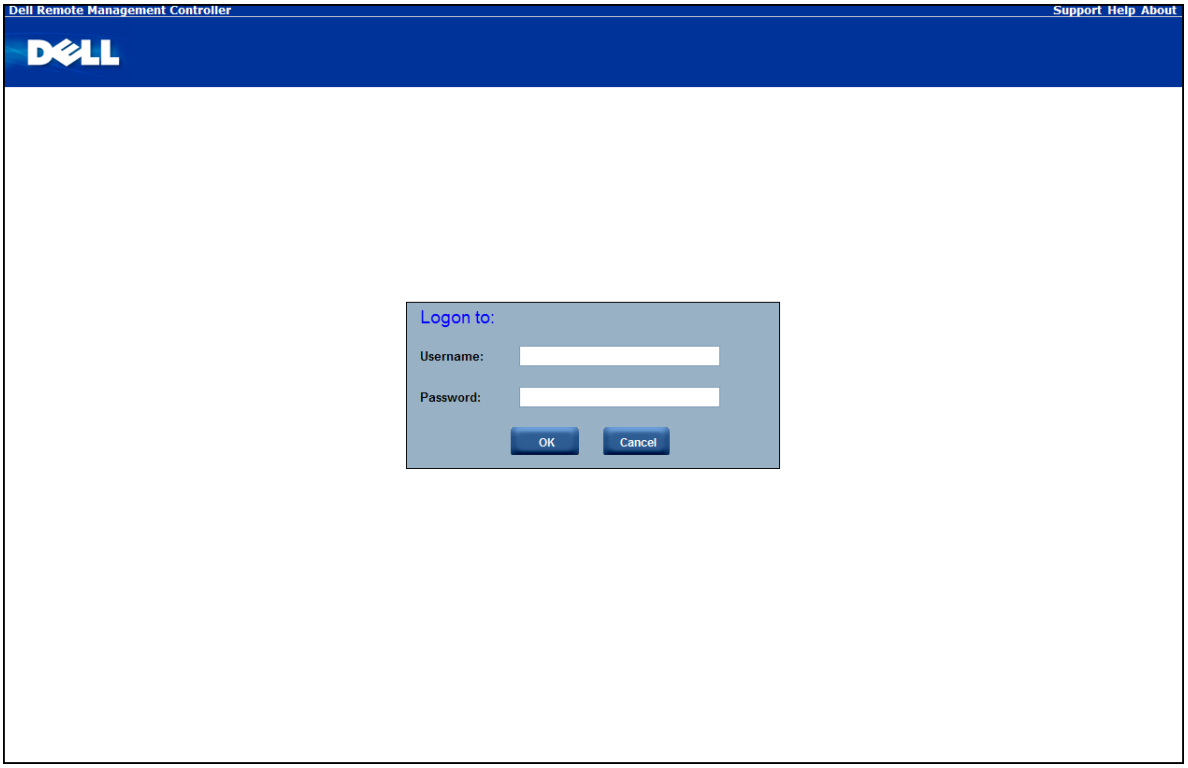
Before entering the Dell Remote Management Console, you need to connect the DHCP server in the subnet to which it is physically connected. If a DHCP server is found, it may provide a valid IP address, gateway address and net mask. Before you connect the device to your local subnet, be sure to complete the corresponding configuration of your DHCP server. It is recommended to configure a fixed IP assignment to the MAC address of the system.

Static/DHCP IP Controlled by Front Panel Button

The following illustration shows the instruction for gathering IP source using front panel button.



Remote Management Console Overview



1. Open a web browser and type in your identified IP. The IP address can be found using your **DHCP server**.
2. A dialog box prompts you to enter Username and Password.
3. Enter the following values:
   Username: **root**

   Password: **root**

NOTE: The default user name and password are in lower-case characters.

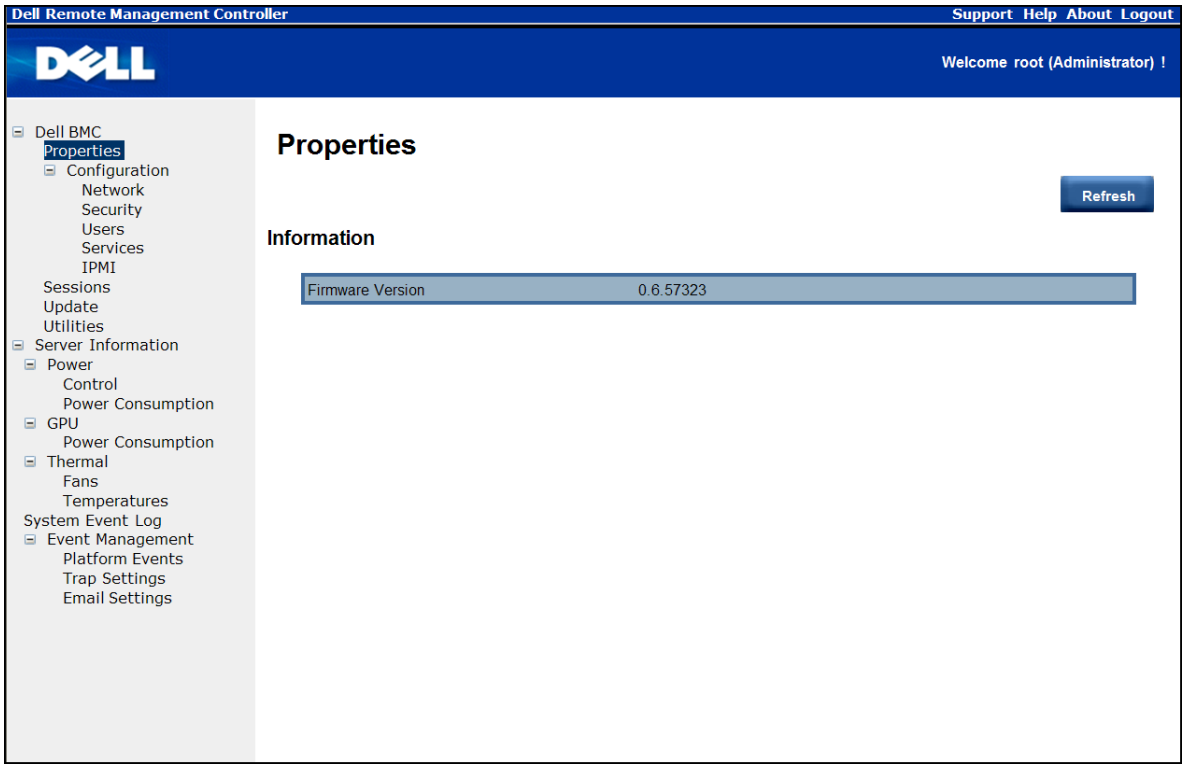
NOTE: When you log in using the root user name and password, you have full administrative privileges. It is advised that once you log in, you should change the root password.

Enter Dell Remote Management Console

After you successfully log into your Dell Remote Management Console, the Remote Management Console GUI appears.

Properties

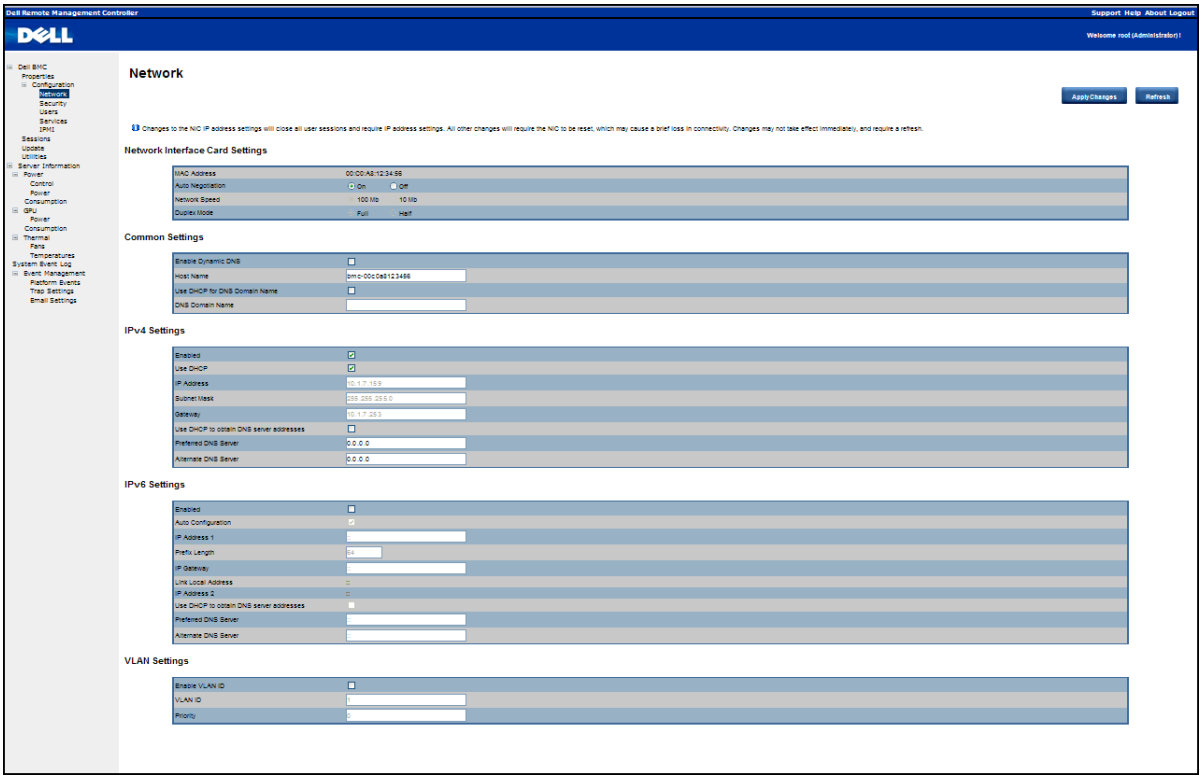
Properties displays the firmware version of current remote client system.



Configuration

Network

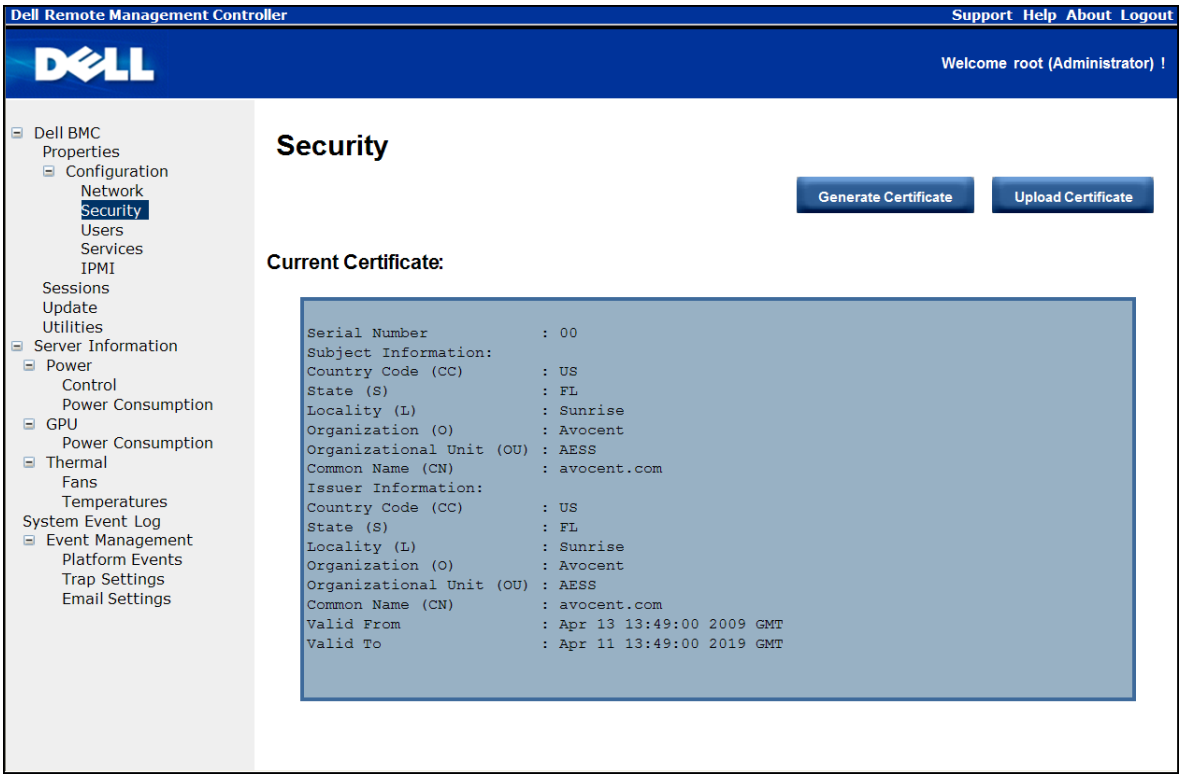
You can view and modify the network settings on this screen. Select whether to obtain an IP address automatically or configure one manually. It is recommended to use DHCP if your environment has a DHCP server. You can set DHCP (obtain the IP address automatically) or STATIC IP (configure the IP address manually). When you finish configuration, click **Apply Changes** or for re-configuration click **Refresh**.



Security

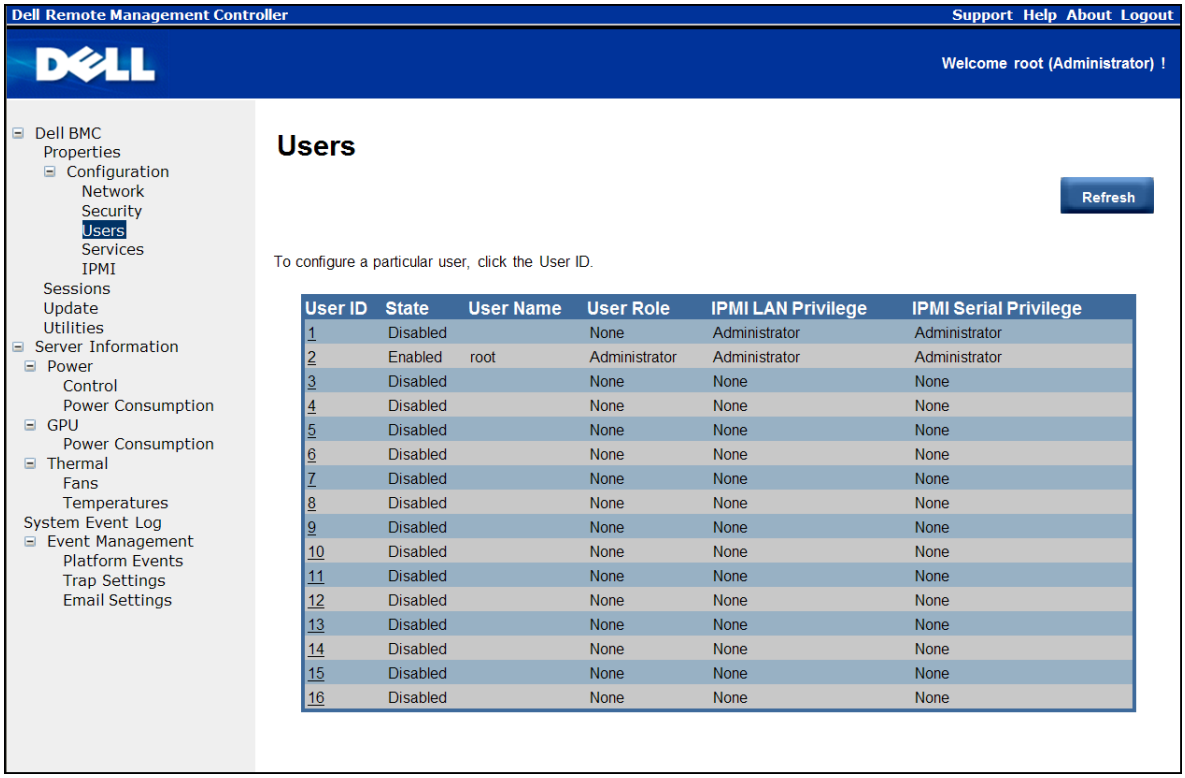
Security shows the current certificate status. To generate a new certificate, click **Generate Certificate** .

To upload a certificate, click **Upload Certificate**.



User

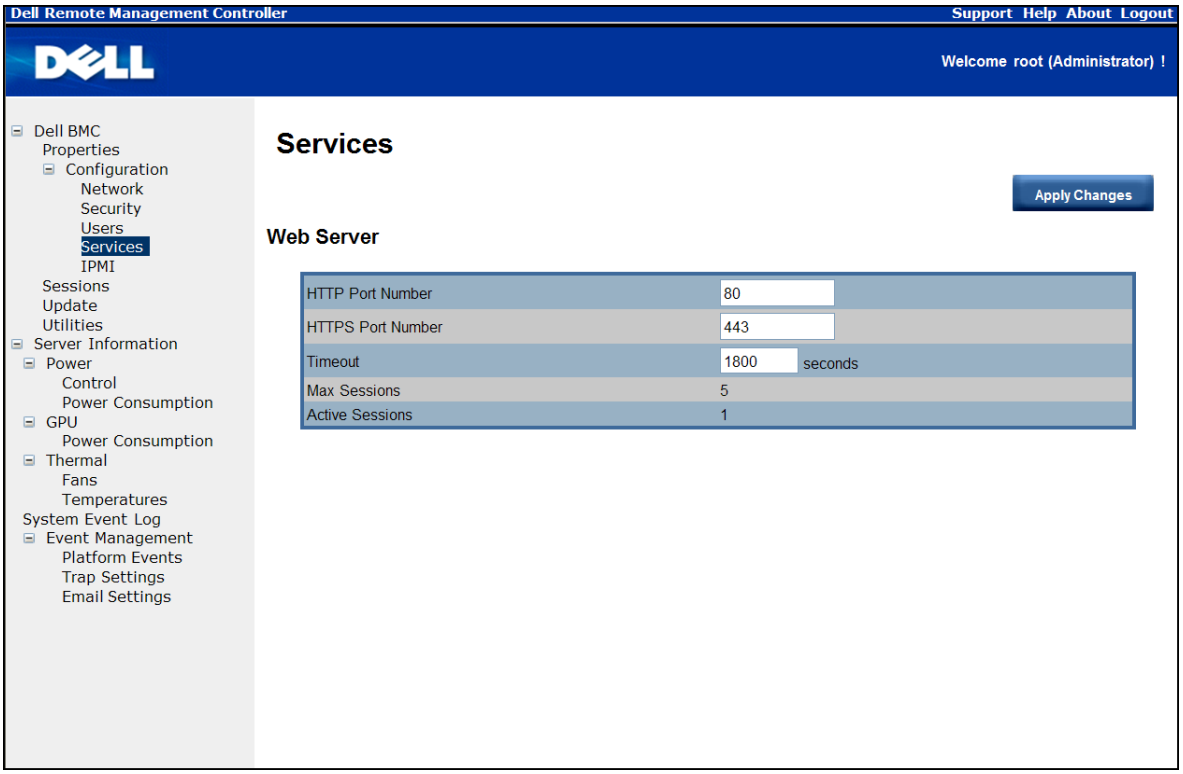
To configure a specific user, click the **User ID**. To display new user information, click **Refresh**.



Services

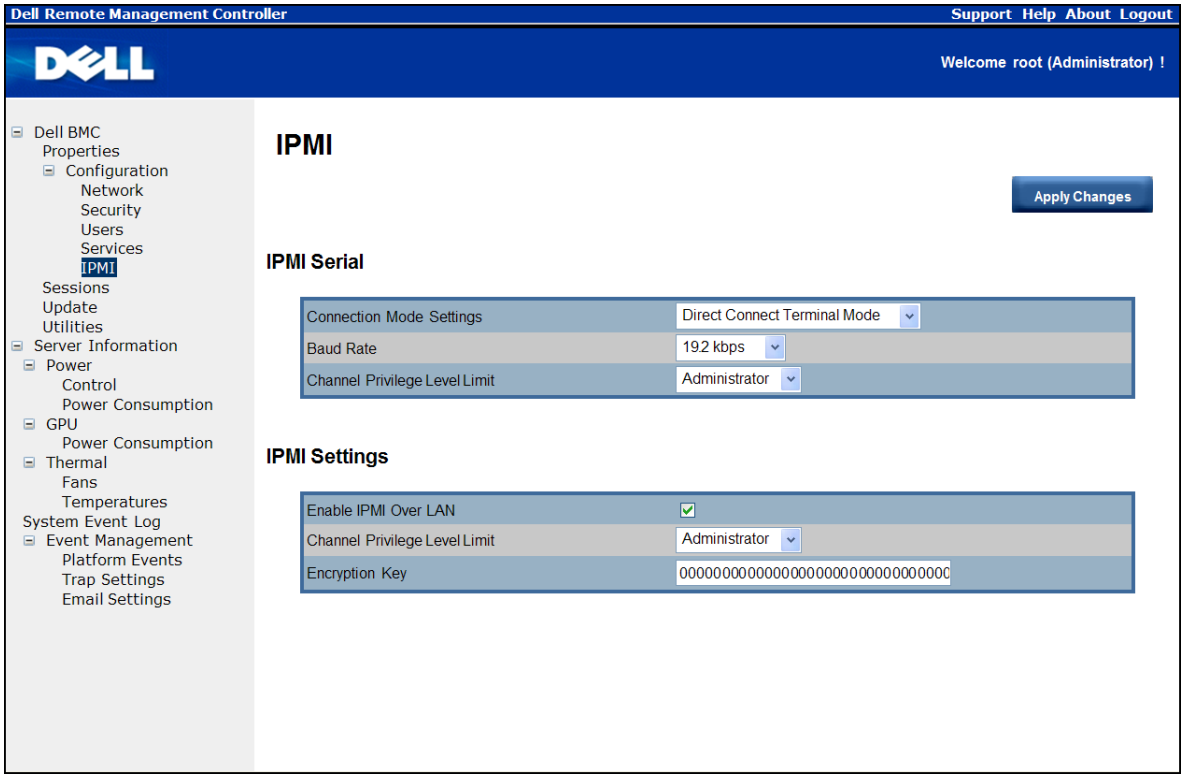
You can configure the web server parameters (such as, HTTP Port Number, HTTPS Port Number, and Timeout) on a remote computer. By default, the timeout is 5 for the Max Sessions and 1 for the Active Sessions.

When you finish the configuration, click **Apply Changes**.



IPMI

This screen contains two sections: IPMI Serial and IPMI Settings.



IPMI Serial

There are three serial configuration in IPMI Serial: Connection Mode Settings, Baud Rate, and Channel Privilege Level Limit.

The Connection Mode Settings allows user to select the Console redirection type and to manage the system from a remote location.

Once the connection mode is set, select the Baud Rate from the drop-down list.

With Channel Privilege Level Limit, users can be configured to operate with a particular maximum Privilege Level. Privilege levels tell the BMC which commands are allowed to be executed. Table 3 lists the currently defined User Privilege Levels.

Table 3 User Privilege Levels

User	This may be considered the lowest privilege level.
Operator	All BMC commands are allowed, except for configuration commands that can change the behavior of the out-of-band interfaces. For example, Operator privilege does not allow the capability to disable individual channels, or change user access privileges.
Administrator	All BMC commands are allowed, including configuration commands. An Administrator can even execute configuration commands that would disable the channel that the Administrator is communicating over.

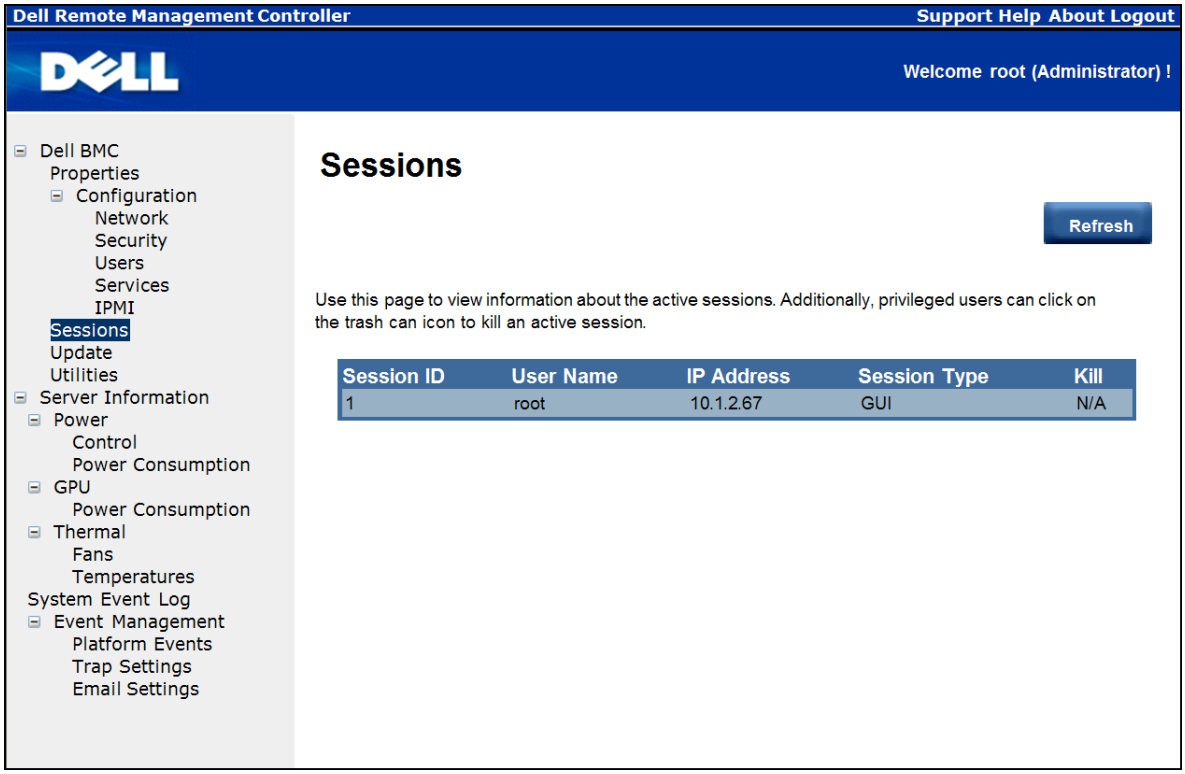
IPMI Settings

IPMI Settings provides remote configuration over LAN. To activate IPMI remote configuration by LAN, check **Enable IPMI Over LAN** option, define the Channel Privilege Level Limit, and enter the Encryption Key.

When you finish the configuration, click **Apply Changes**.

Sessions

This screen displays information on Active Sessions. Additionally, the trash can icon provides the delete function for privileged users. Click **Refresh** to refresh the Sessions status.

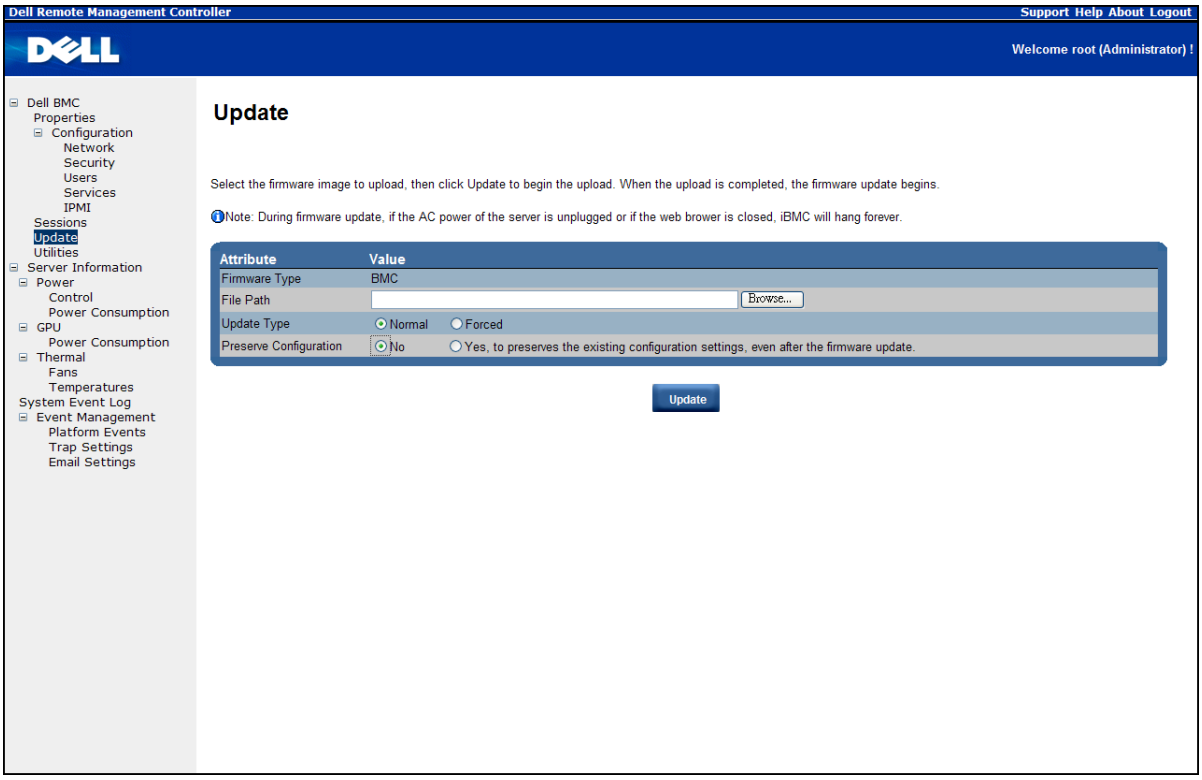


Updates

The firmware can be updated remotely.

To update firmware, follow the instruction below:

1. Select the file on your local system using **Browse**.
2. Click **Update** to delete the current version and update to the new version.

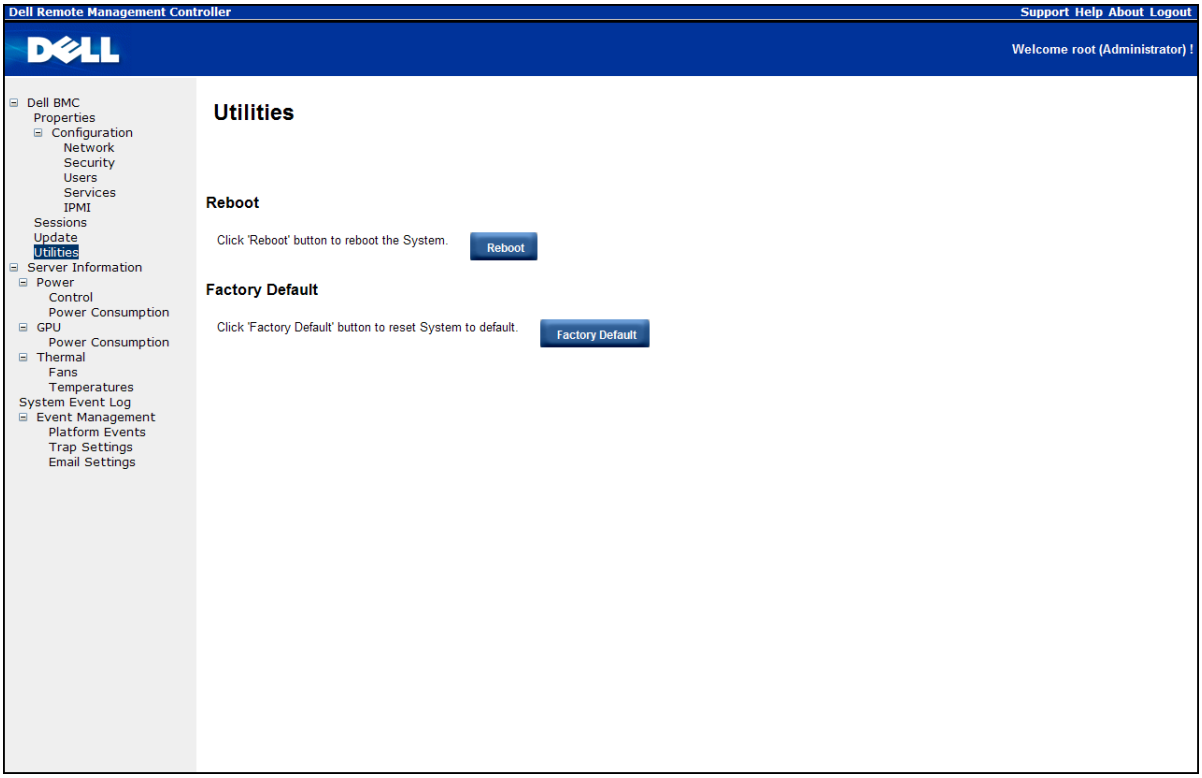


Utilities

Utilities provides System reboot and Factory default restore functions.

To reboot system, click **Reboot**.

To restore factory default, click **Factory Default**.

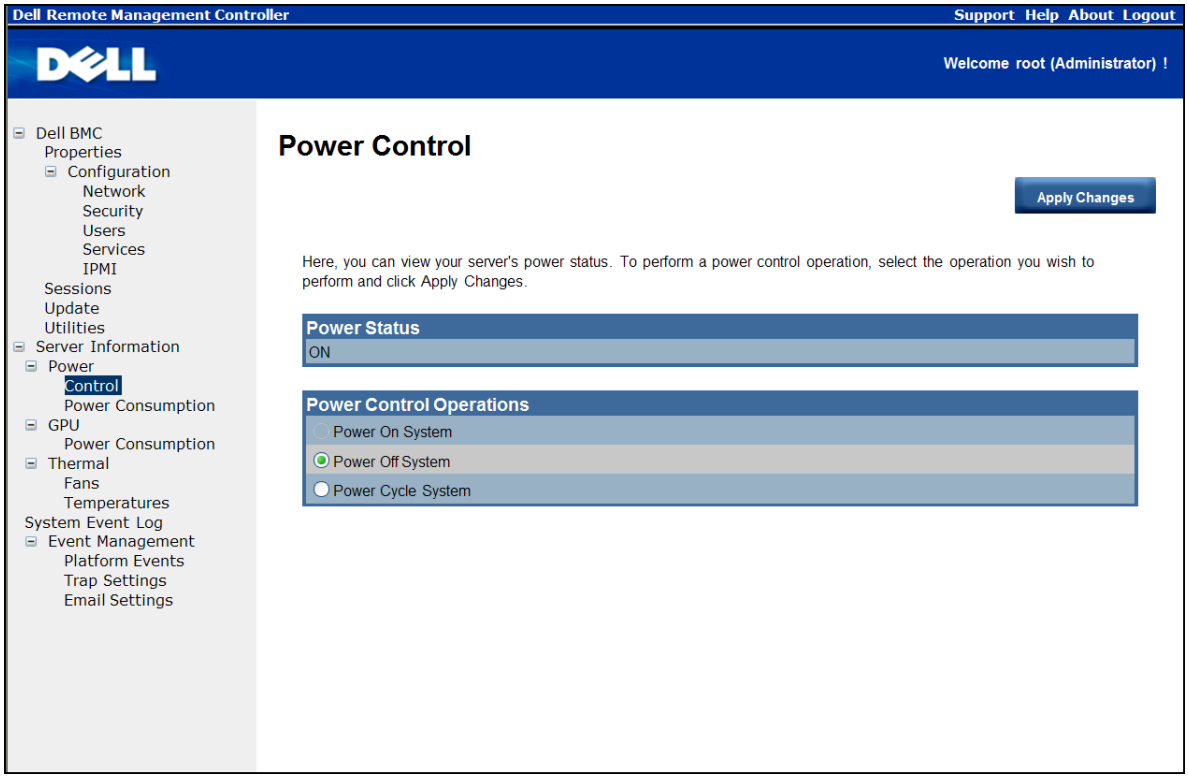


Server Information

Power Control

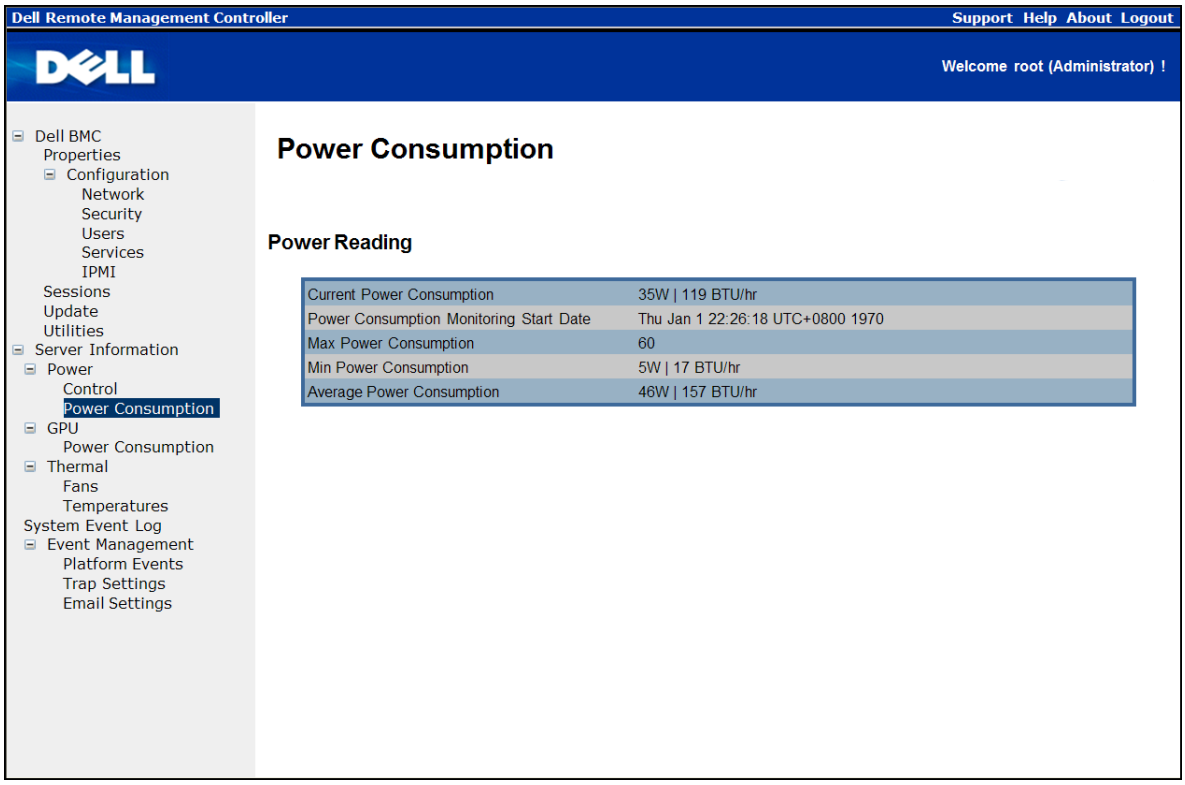
The Power Control allows you to power on/off/cycle the remote host system. Additionally you can see the remote power status.

To perform the power control operation, select the operation and click **Apply Changes**.



Power Consumption

This screen displays information on the system power consumption. The information includes Current Power Consumption, Power Consumption Monitoring Start Date, Max/Min Power Consumption, and Average Power Consumption.

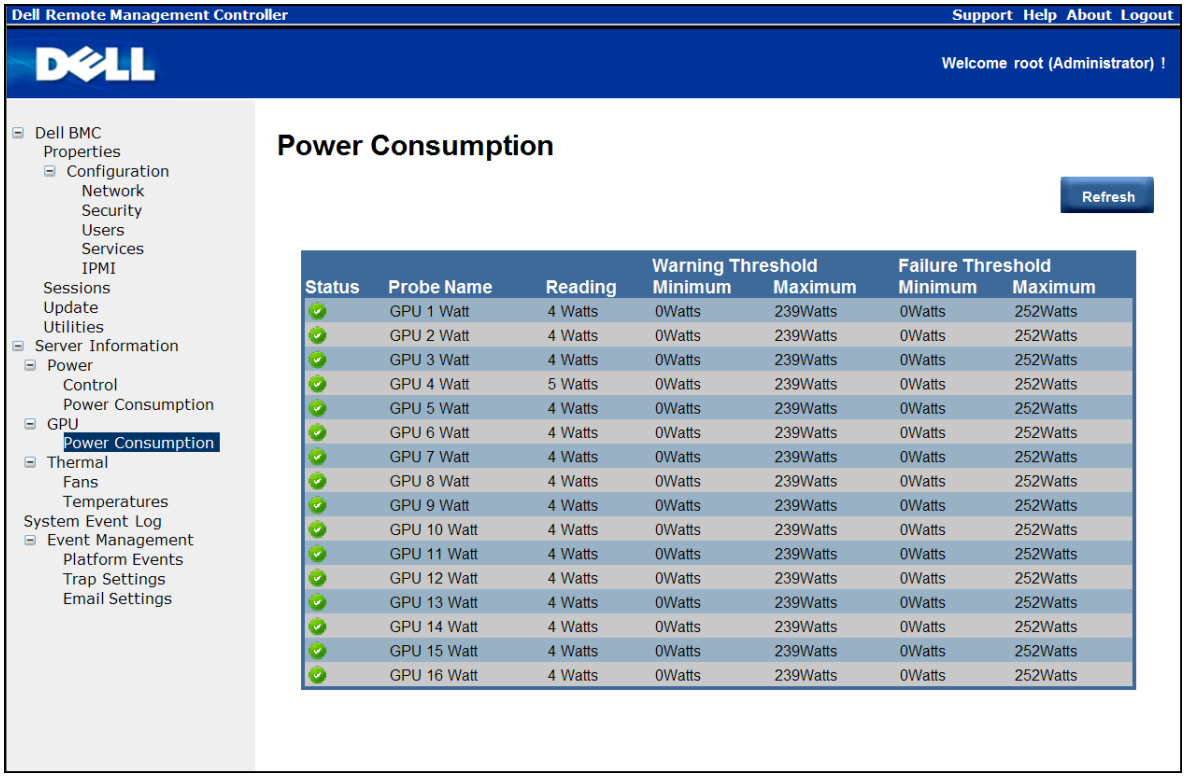


GPU Power Consumption

This screen displays the status of GPU power consumption.

Each sensor displays different color to indicate the health status of a specified GPU device.

	The green color indicates the device is healthy and there's no sensor that has any alert.
	The yellow color indicates the device has at least one sensor that has warning alert.
	The red color indicates the device has at least one sensor that has a critical alert.



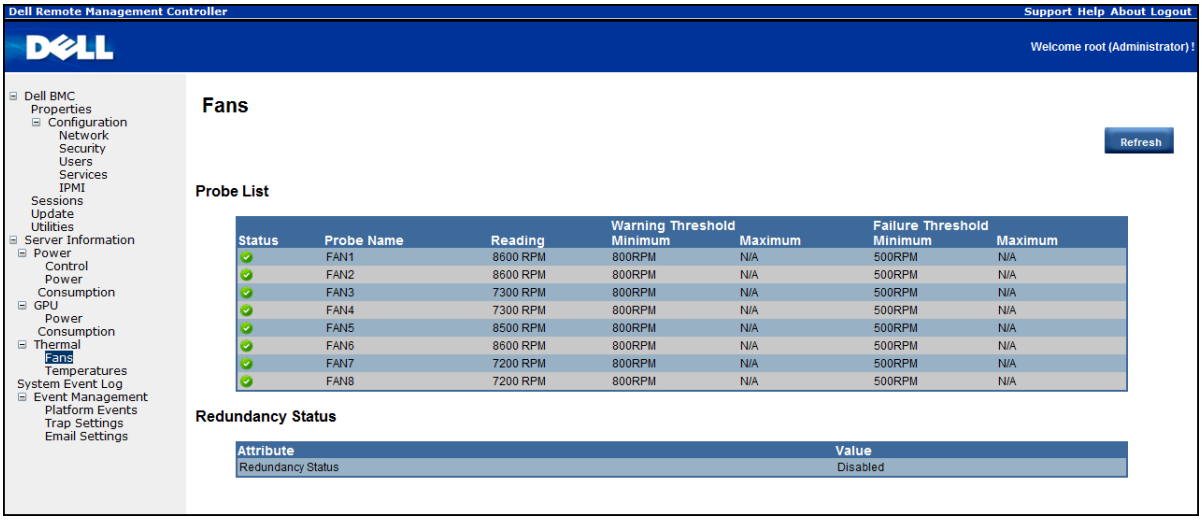
Thermal

This screen displays the Fans and Temperatures sensors of a remote host system.

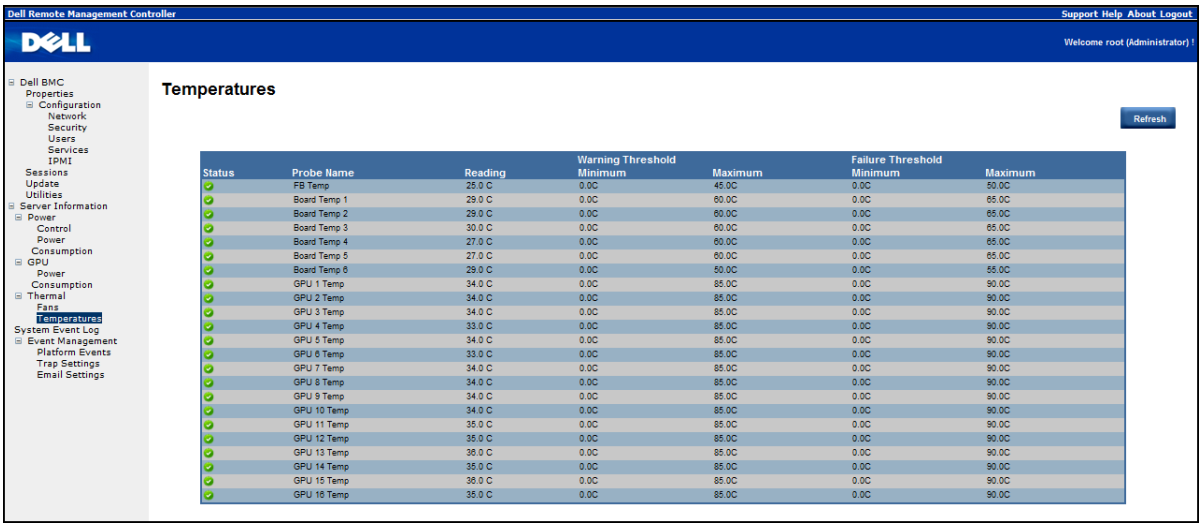
Click **Refresh** to update current health status for both Fans and Temperatures.

	The green color indicates the device is healthy and there's no sensor that has any alert.
	The yellow color indicates the device has at least one sensor that has a warning alert.
	The red color indicates the device has at least one sensor that has a critical alert.

Fans

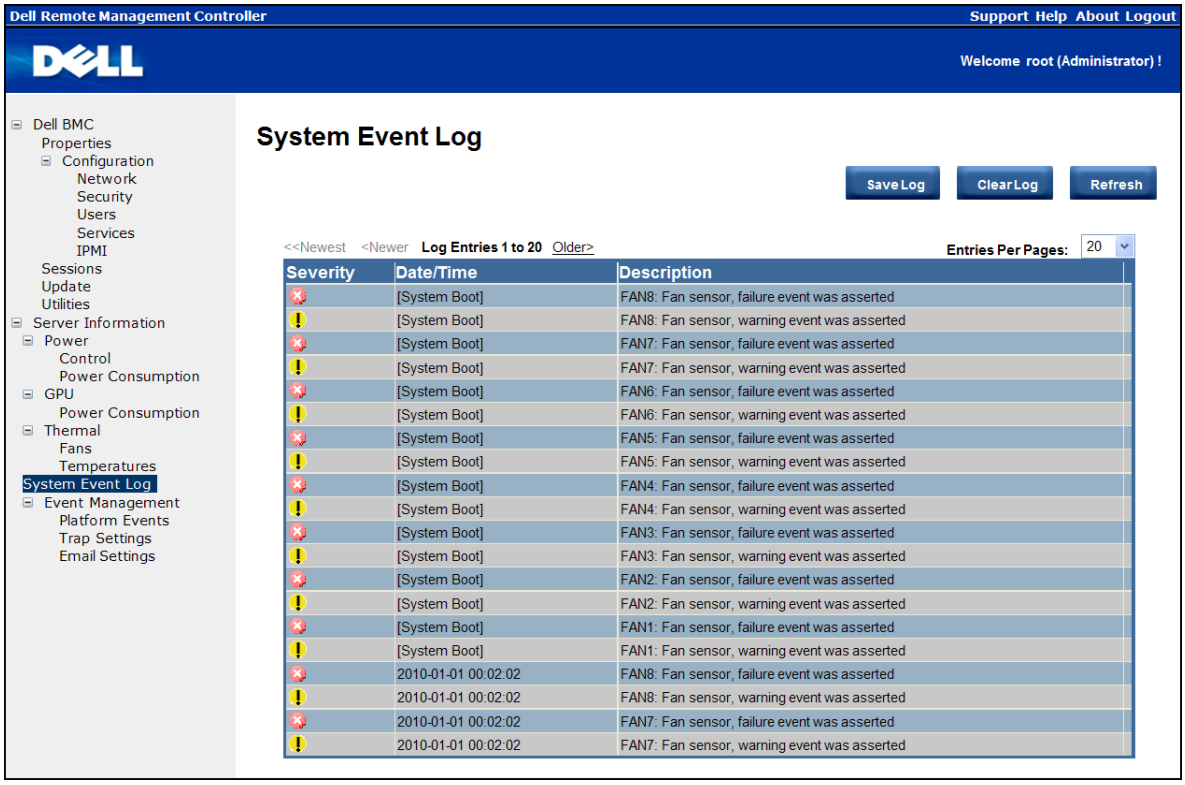


Temperatures



System Event Log

System Event Log: It records the event when sensor has an abnormal state. When the log matches the pre-defined alert, the system sends out the notification automatically, if it is pre-configured.

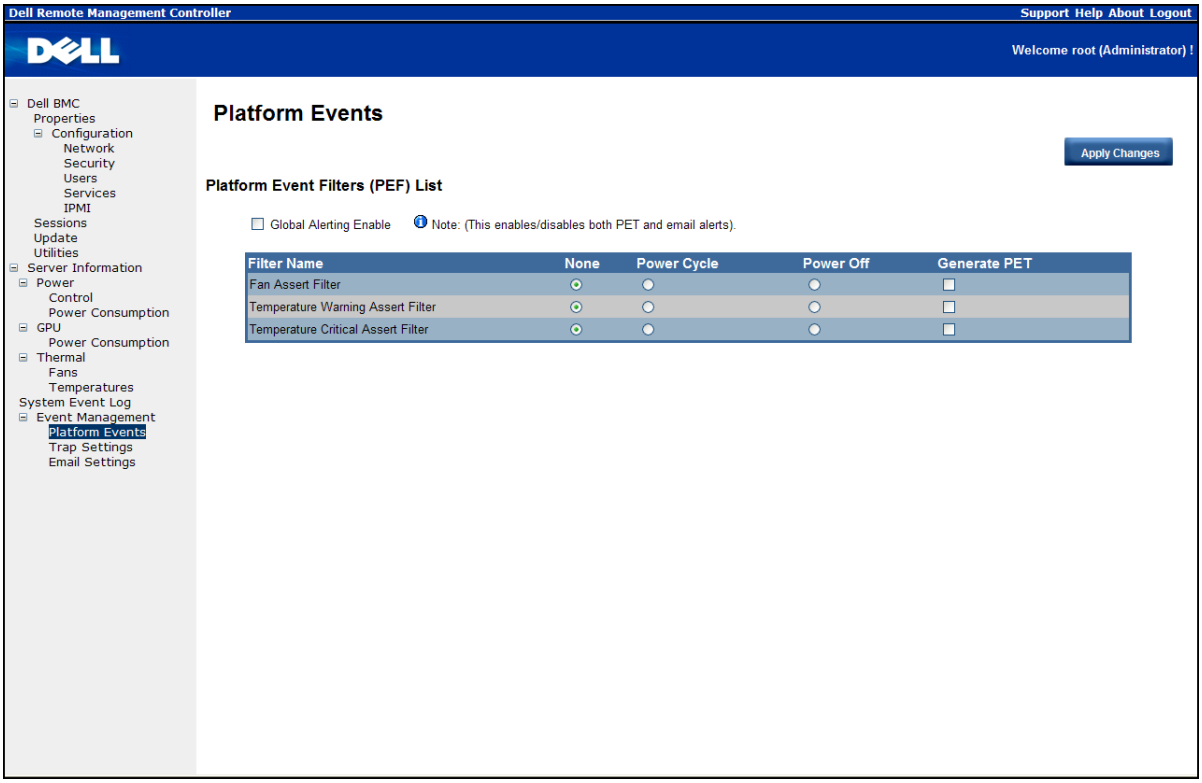


Platform Events

A platform event filter (PEF) can trigger an action and generate an alert when a critical hardware-related event occurs. For each PEF, you can choose the action to be taken when a platform event occurs. You can also choose to generate and send an alert when a platform event occurs.

In the Platform Events screen, you can enable the generation of platform event alerts globally by clicking **Global Alerting Enable**.

When you finish the configuration, click **Apply Changes**.



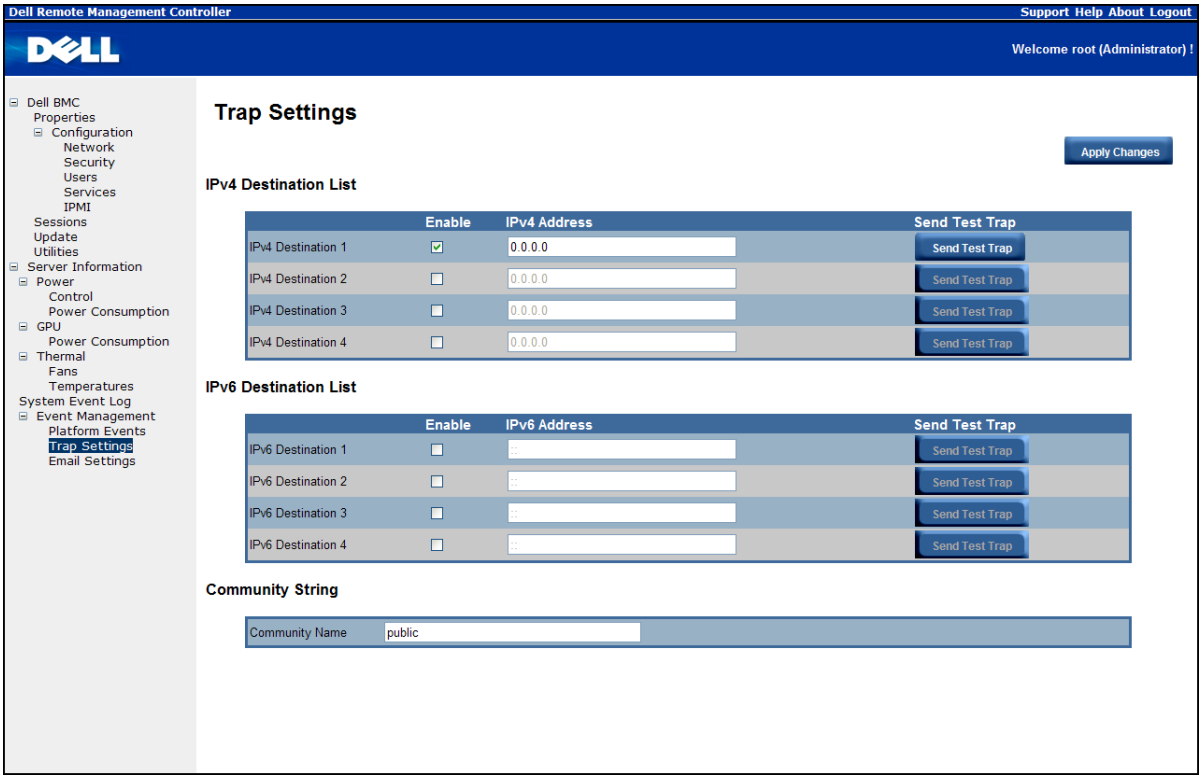
Traps Settings

In the Trap Settings, user can set the IPv4 and Ipv6 Destination List.

IPv6 and IPv4 are two completely separate protocols. IPv6 is not backwards compatible with IPv4, and IPv4 hosts and routers will not be able to deal directly with IPv6 traffic.

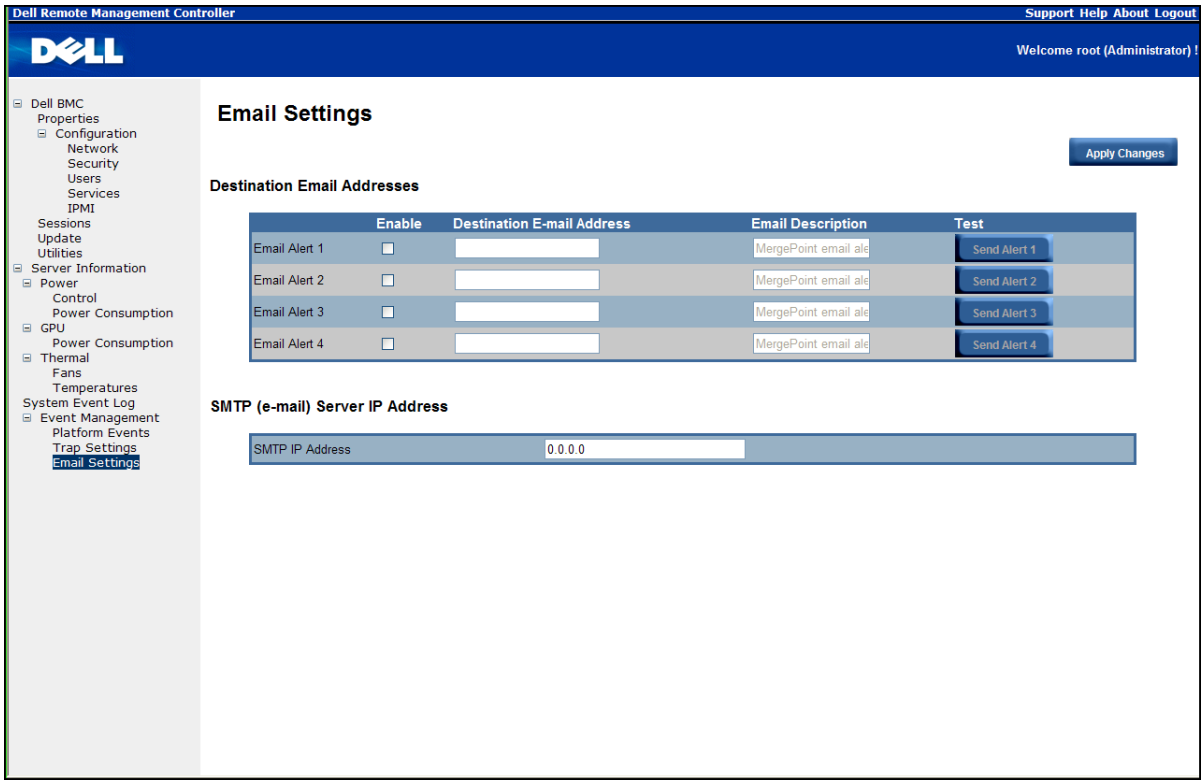
IPv6 has a significantly larger address space than IPv4. This results from the use of a 128-bit address, whereas IPv4 uses only 32 bits.

When you finish the configuration, click **Apply Changes**.



Email Settings

If you want the alert to be sent by email, you can configure to specify the e-mail address, subject and message in the Email Settings. After you finish the configuration, click **Apply Change** to save the settings.



Chapter 5: Troubleshooting Your System

Safety First—For You and Your System

WARNING: Whenever you need to lift the system, get others to assist you. To avoid injury, do not attempt to lift the system by yourself.

WARNING: Before removing the system cover, disconnect all power, then unplug the AC power cord, and then disconnect all peripherals, and all LAN lines.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

Symptom: iPass card / port not recognized by the system

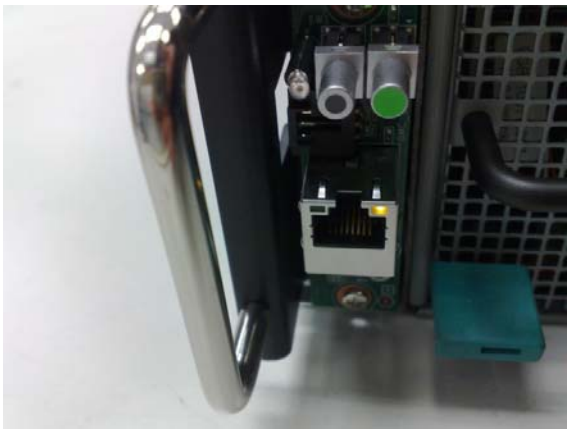
Check System Status (System must stay switched off)

1. Plug-in all four power cords to the 220V A/C power supply.

   NOTE: Do not press power button on the system.

2. Check front panel LED (ID and Power LED)
   - ID and Power LED should not light at the beginning.
   - After 30 seconds or so, when BMC is ready, ID LED and Power LED blink once.

3. System powers on. After 40 seconds, power LED lights.



4. When GPU cards are ready, power on the system for test.
5. All GPU cards LED should lights. If not, see **Checking GPU Card** on page 57.

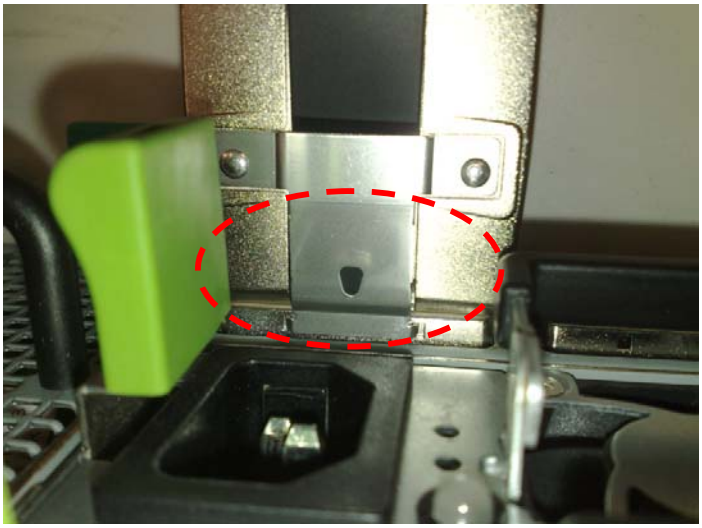
Checking GPU Card

1. Power off and remove top cover.
2. Power on and check if GPU card LED lights.

3. If not, power off, then reinstall GPU card again or swap GPU card.
4. If not, see **Check iPass cable**.

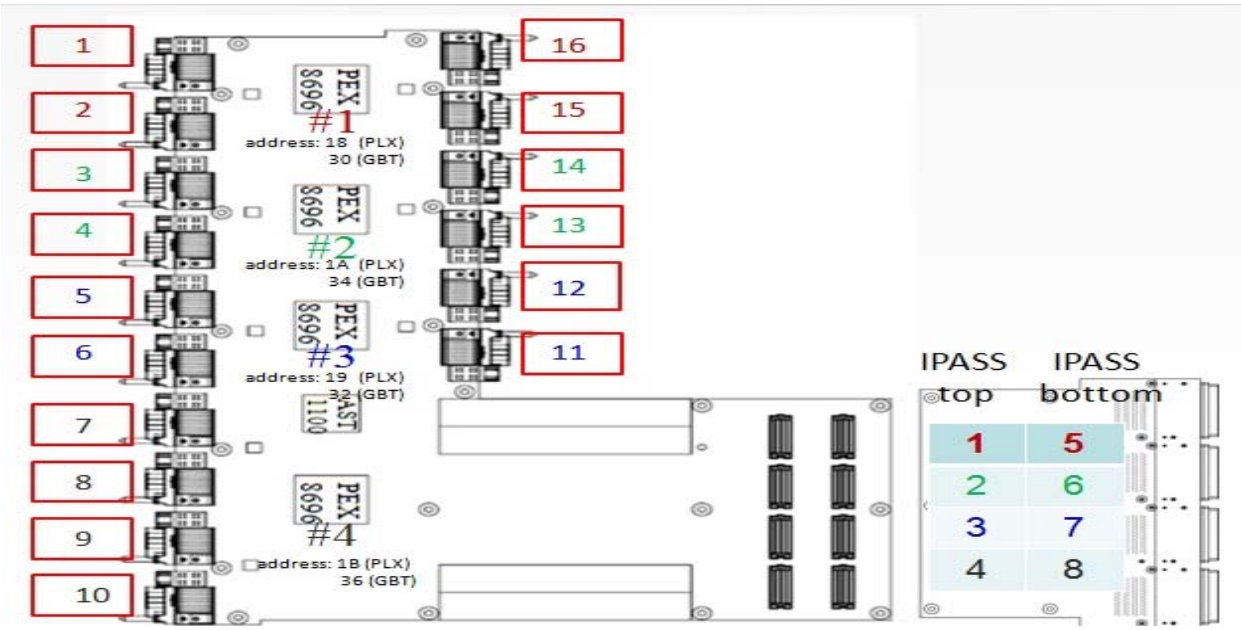
Checking iPass Cable

1. Check if iPass cable is properly connected.



2. If not, power off the system and plug-in power cable again.
3. If not, swap iPass cable.

Checking iPass Connector to PowerEdge C6100 Systems



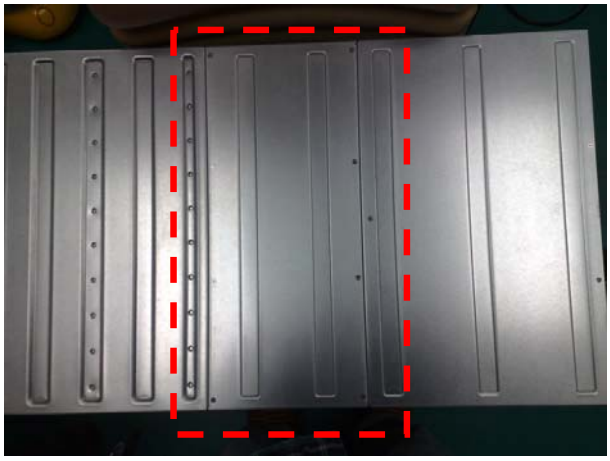
1. Check BTB Connectors to iPass Board.
2. Check System SMBUs device routing table.

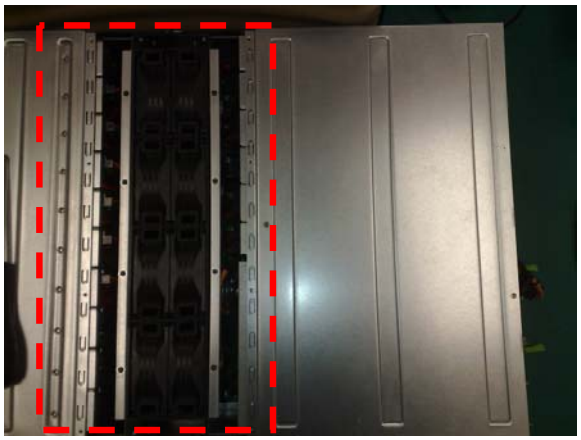
IPASS TOP		IPASS Bottom		
iPass 1:	Slot 1/15	iPass 5:	Slot	2/16
iPass 2:	Slot 3/13	iPass 6:	Slot	4/14
iPass 3:	Slot 5/11	iPass 7:	Slot	6/12
iPass 4:	Slot 7/9	iPass 8:	Slot	8/10

Check if iPass Board (GS-IPASS2 / GS-IPASS3) is installed properly

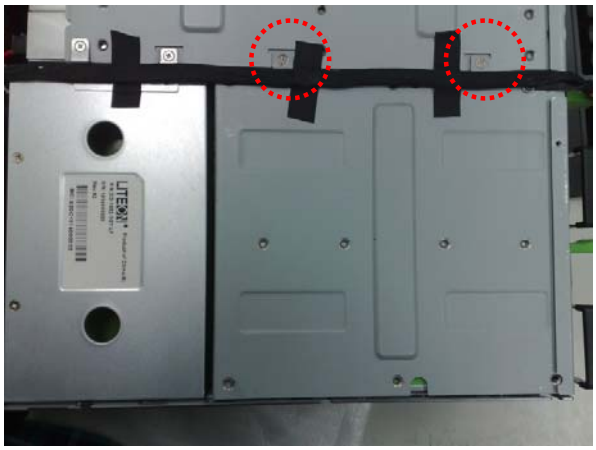
1. Power off the system.

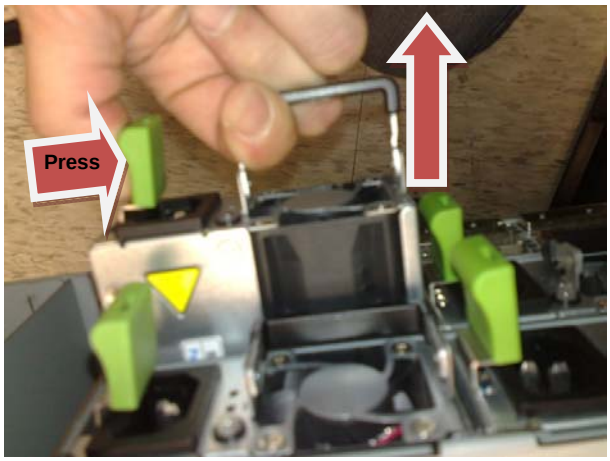
2. Remove top cover.



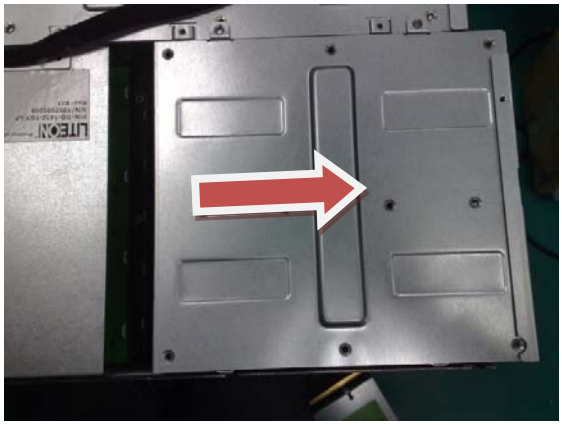


3. Remove PSU top cover.

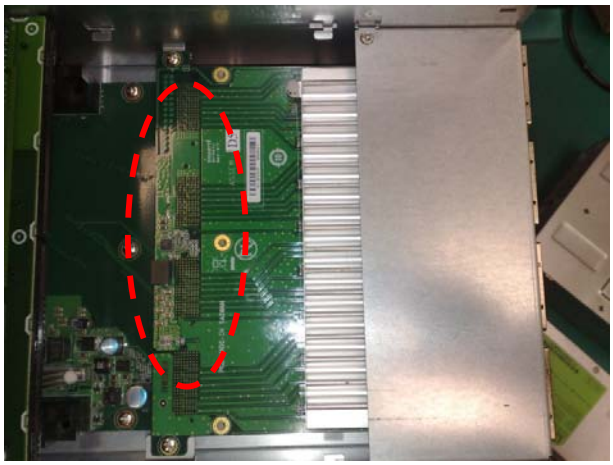




4. Remove power cage.



5. Press iPass board to ensure it contacts middle plane.



6. Restart system and test it again.

Chapter 6: Getting Help

Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com.**
2. Click your country/region at the bottom of the page. For a full listing of country/region click **All**.
3. Click **All Support** from **Support** menu.
4. Select the appropriate service or support link based on your need.
5. Choose the method of contacting Dell that is convenient for you.

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